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Locksmith

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The National Locksmith

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MORE ARTICLES!
MORE INFORMATION!**

CODES:
New GM Series cont'd.
pages 84-97

October 1994
Volume 65, No. 10

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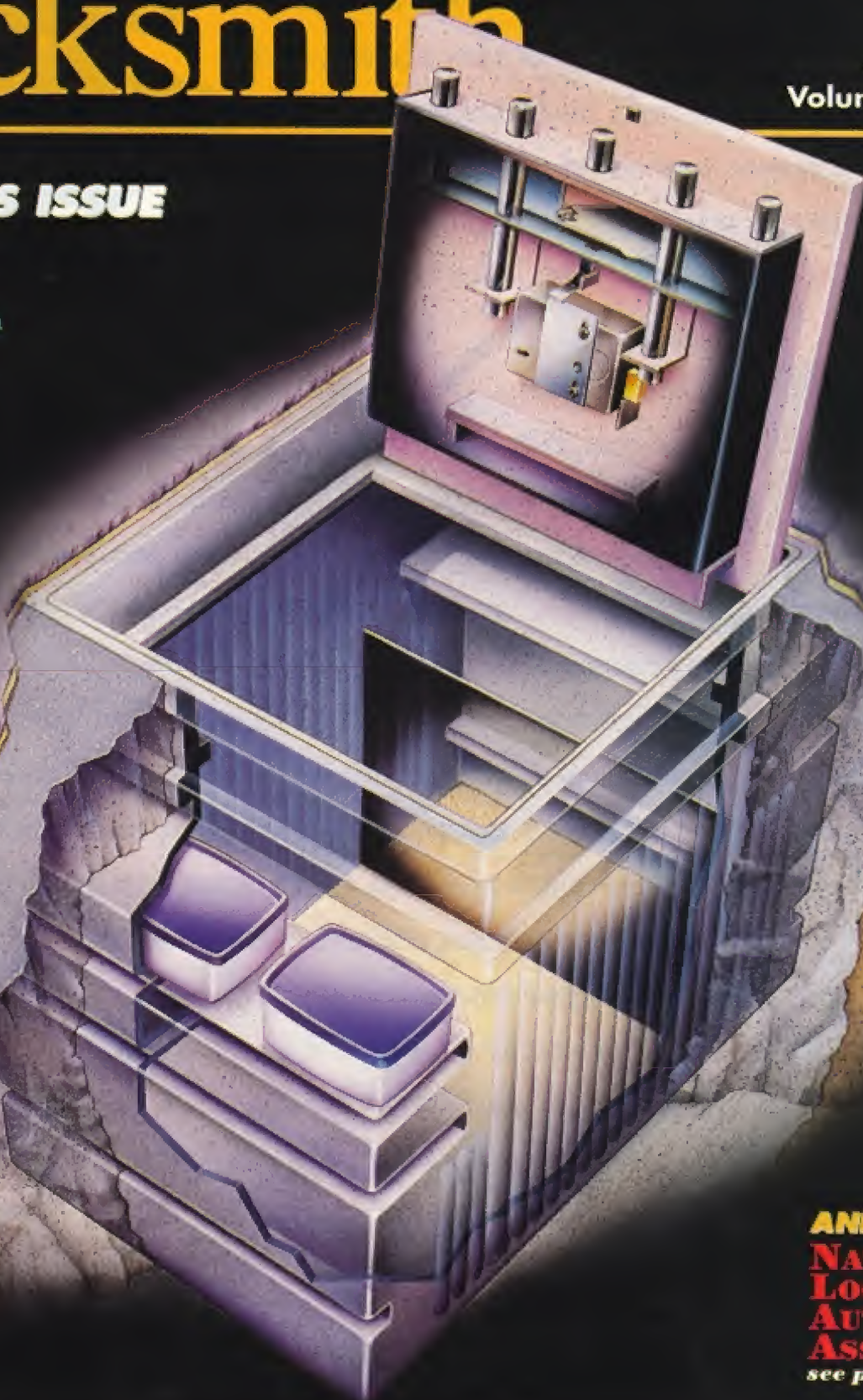
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PLUS...

**DHI BONUS
SUPPLEMENT**



ANNOUNCING...
**NATIONAL
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On The Cover

Hayman reveals the FS4000 in-floor safe and the process all manufacturers must go through to bring new products to market.

**Click on the article
you wish to read**

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COMMENTARY

The National Locksmith Automobile Association Is Growing!

Recently, Chicago was plagued by a rash of burglaries committed by a professional burglary ring. This ring specialized in hitting bridal shops, stealing valuable gowns and office equipment. When the gang was discovered and arrested, it was released to the media by the police that the head honcho was a "master locksmith."



Marc Goldberg
Editor/Publisher

Now, this guy may never have worked one day in his life as a locksmith. But because he had skills in opening locks, the police are describing him as a "master locksmith."

I believe that the way to distinguish between a crook and a locksmith is to establish locksmith licensing throughout the nation. It is a shame that an honorable profession like ours should be sullied by being compared to burglars. When we hold a license in our hands, proving our credentials, the media will no longer compare us to burglars. Also, should a locksmith go bad and cross over to the other side of the law, his license would be yanked and he would no longer be the bad apple rotting in our barrel.

Last month we announced the formation of the National Locksmith Automobile Association, or NLAA. I am pleased to report that the association is getting off to a quick start with many of you joining to obtain the many benefits offered by the NLAA.

Today's locksmith must be prepared to service any one of over 400 different makes and models of foreign and domestic automobiles! It sure is hard to keep up on all the changes and service procedures for these 400 plus vehicles. When you don't have the right information, a simple job can turn into a nightmare, costing you time and money. Or worse yet, you might be forced to turn down a job simply because you are not familiar with the vehicle.

No longer will you need to struggle with automotive work. Even when you come across the new high security cars, you can depend on the NLAA to keep you trained and informed. Our newsletter and technical bulletins put a wealth of information right in your hands. Of course, we will continue to do a good job of covering automotive locksmithing right here in *The National Locksmith*. However, we have so much more information than will fit here that we decided to launch the NLAA in order to keep you current.

If you are interested in more information about the NLAA, and the terrific free gift we offer to the first 500 members to join, please see pages 72 and 73.

As the NLAA begins to attract many members, this is a good time for for to remind you about the National Safeman's Organization, or NSO.

The NSO has attracted over 1,600 members by offering a continual flow of information, training and certification in the field of safe service. If you are now doing any level of safe work, or if you would like to learn how to increase your profits by learning safe work, contact us to join the NSO! After all, it's all about earning profits by increasing the security of our customers.

Please be aware that we have slightly changed our office hours here at *The National Locksmith*. We are now open from 8:30 a.m. to 5 p.m. from Monday through Thursday. On Friday we are open from 8 a.m. to 3:30 p.m. (Central Standard Time)

Marc Goldberg

LETTERS

Comments, Suggestions and Criticisms

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and length. Please address your comments, praise, or criticism to Editor, **The National Locksmith**, 1533 Burgundy Parkway, Streamwood, IL 60107. All letters to the editor must be signed.

Problems With Wiring

Dear Marc:

On page 49 of the July 1994 issue, in an article titled "Wire it Right the First Time," the author says: "To accommodate the customer, the (electric strike) wires are going to be run through an existing conduit that runs 120 volt conductors through them. Again, in order to run the strike wire, the proper wire must be used."

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Wrong! The National Electrical Code prohibits running low voltage Class 2 or Class 3 wiring in the same conduit as electric light and power wiring. See Section 725-38 (a) (2). Such an installation is both a fire hazard and a safety hazard.

Arnie Bell
California

Editor's Note:

Thanks for the response to the article, Arnie, it's good to see locksmiths that are competent at electricity. As to our response to your letter, you aren't the only one to raise questions regarding this type of wiring application. According to Greg Voorhees, this same problem arises frequently. So as author of that article, I'll let Greg respond.

Greg is a Certified Master Electrician, Certified Chief Electrical Inspector, taught National Electrical Code classes, served as Chairman of the Electrical Board, Lawrence, Kansas, and is licensed as an electrical contractor in four states.

Arnie:

Allow me to clarify the issue of running 12-18 volt conductors in the same conduit with 110 volt conductors. It should have been noted that the 110 volt wires switched a contactor that operates a 480/277 volt lighting panel. I considered the 12-18 volt wires to be Class 1 wiring as stated in Article 725-11, and I also considered the 110 volt to be Class 1 remote-control not exceeding 600 volts as stated in Article 725-11(b). Article 725-15 states as follows: "Conductors of Different Circuits in Same Cable, Enclosure, or Raceway. Class 1 circuits shall be permitted to occupy the same cable, enclosure, or raceway without regard to whether the

individual circuits are alternating current or direct current, provided all conductors are insulated for the maximum voltage of any conductor in the cable, enclosure, or raceway. Power supply and Class 1 circuits conductors shall be permitted in the same cable, enclosure, or raceway only where the equipment powered is functionally associated."

The electrical inspector (remember, he has the final say) considered both the 110 volt circuit wires and the Class 1 wires power supply conductors going to switches. In other words, he considered them functionally associated allowing them to run in the same conduit as long as they met the insulation requirements.

This particular application is not uncommon, but the inspector in your area and your state has the last word!

Greg Voorhees

World's Oldest Locksmith?

Dear Marc:

Am I the oldest working locksmith in the business? I have been in the locksmith trade for over 50 years. I am 85 years old and work 40 hours per week. Just wondering!

I may have the largest family too? Thirteen kids!

Edward B. Rick
New York

Editor's note:

You have me beat on both counts, Ed, so, let's open this to our readership. If there's anyone out there that can who can better Ed's numbers, let us know!

Add A Locksmith School

Dear Marc:

I'm writing to let you know that your August 1994 issue listing of Locksmith Trade Schools had one serious omission - the School of Lock Technology. Our school has been in operation since 1990 and has graduated over 120 students - a high percentage of them have found employment in the trade.

Thanks in advance for your assistance.

Wayne D. Maris
School of Lock
Technology
California

Reader Verifies Scam

Dear Marc:

I wrote you quite some time ago about the Standard Tool and Lock Company in Florida, who are selling try out keys for \$199.95 that are supposed open GM cars from 41 to present. I took these keys to my friends junk yard and went through twenty-two cars and only opened one of them. I wrote to the company and the letter came back "Address Unknown."

Joseph Keith
Massachusetts

Sore With Suppliers

Dear Marc:

I think locksmiths should do something about the locksmith wholesalers that actively sell to the end users.

We have complained about the police departments, etc., that are taking business away from the locksmith, but I

have not seen many complaints about the suppliers that are taking away lucrative sales. In the past year I have quoted prices on considerable amounts of merchandise, only to lose the sale to a supplier.

I cannot blame the buyers, it is their job to get the best price available for the product they need. Some buyers do not know if they are requesting a quote from a wholesaler or a retailer, while others know what they are doing, and want the locksmith to meet the price plus service it.

I have made it a practice to not purchase from these suppliers. And I think if enough locksmiths complained and did not use these suppliers, then we may be able to stop, or slow down the number of locksmith wholesalers that make it a practice of selling to end users.

George A. Sharpley, CML
Pennsylvania



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by

Jake Jakubowski

...AND YOU SING WELL, TOO: PART 2

Continuing from last month, we'll explore some more avenues for putting more change in your pocket.

Last month I started making some suggestions on how to make more money from the customers you're already servicing. We started and left off with recommending and installing door viewers as you visit each one. The next thing I look at in each establishment I go into is the restroom doors. If they have a knobset on them (and most of them do), I tell the customer that the Americans With Disabilities Act requires (Public Law 101-336, Part III, 28 CFR, Part 28, Subsection 4.13.9 "Door Hardware") that those doors have either push/pull plates or lever sets on them.

Considering that each location generally has at least two rest rooms, I have an opportunity to install two push plates and two pull handles, or two leversets. True, I don't get every job that I suggest, but in the last two weeks I have installed push/pulls on six restrooms and leversets on four!

The plus is that it is all work I would not have gotten if I hadn't

opened my yap and said: "Did you know that the law now requires you to have (fill in the blank) on your restroom doors? The really big plus is that I was already there to do something else!"

Photograph one shows a restroom door with the knobset removed. Using the outside pull plate as a template, I put the bottom hole for the through bolt at the bottom edge of the old crossbore hole and mark the top handle hole for drilling. Then I through-drill the door with a 1/4" bit. Placing the inside push plate on the inside of the door, I insert my 1/4-20 through-bolts with a finish washer (provided), put the outside plate on and attach the handle. This covers the crossbore hole.

Next, I drill six 5/64" holes at the attachment screw location on each plate and, using my portable drill as a

screw gun, I insert the attachment screws around the edge of the plates. Total time per door? About twenty minutes. Photograph two shows a completed push/pull installation, including a filler plate for the latch that was removed. (NOTE: I only install push/pull plates on restrooms that have toilet stalls in them. Otherwise, I install a privacy function leverset.)

Photograph three is of Major Manufacturing's HIT-12 on a door that I am going to install a leverset on. The HIT-12 (the entire HIT series is available from most distributors) is a time-saving drilling jig that allows you to drill the holes that many leversets require for the posts that prevent the lock from being forcefully "turned" in



1. Pulling extra profits from your customers may simply be a matter of observing and suggesting. Here a knobset is removed from a door being prepped for a push/pull plate.



2. The completed Push/Pull Handle installation. Notice the edge filler plate that also added a few buck to the till.

the crossbore hole. Photograph four shows a Grade 2 leverset (conforms to ANSI A156.2 Handicap Code) installed on a restroom door.

Now remember, all this work and the money made from it are a result of making recommendations after you've arrived to do the work you were originally called to do.

I'm telling you; because of the crime problem in this country and people's concerns about their business and personal security, add-on sales like the DoorScope are simply a matter of showing the product to your customer and letting them know that you can install it right away. It is really that simple to make extra money.

If you are aware of the basic requirements of the ADA and how they apply to your customer's business, add-on sales of push/pull plates or leversets for restrooms are a snap. Additionally, you have a solid opportunity to sell entry hardware that is mandated by the ADA. You can get all the information you need about the ADA, for free, by writing: Office on the Americans with Disabilities Act, Civil Rights Division, U.S. Department of

Justice, P.O. Box 66118, Washington, D.C. 20035-6118.

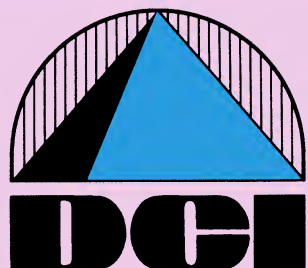
The down-side to making money this way is that you have to make a couple of small investments. You should have a DoorScope or other door viewers on your truck to demonstrate to your customer and you should have at least two leversets and two sets of push/pull handles. Otherwise, how can you fill the need if you find it. The rest of the investment is effort. You need to put forth the effort to train yourself to look for the needs of your customers.

By taking a non-traditional approach to making money in this business, you can often find innovative



3. Using Major Manufacturing's HiT-12 to make leverset installation easier.

ways to make money. And as the proverb says: "If you have money in your pocket, you are wise and you are handsome and you sing well too."



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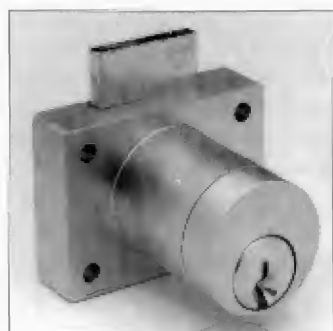
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NEWSMAKERS

New Products and Industry News

Schlage CL-Series Cabinet Locks

Schlage Lock Company is introducing a separate product line for cabinet door and drawer locks – the new Schlage CL-Series. The CL-Series locks consist of 12 different style options with four finishes including bright and satin brass and bright and satin chrome.



The CL-Series can be masterkeyed to any new Schlage key system or is easily rekeyed to an existing Schlage system. Primus high security cylinders, available with the CL-Series, are especially useful for applications that require extra security and key control.

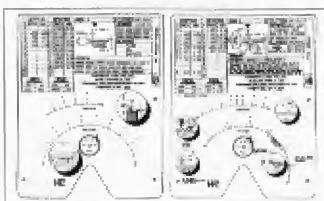
The CL-Series has a total installation system of user-friendly strikes and spacers to allow a flush fit to the face of the cabinet door or drawer.

For **FREE** Information
Circle 213 on Rapid Reply

HPC Code Cards Available

HPC announces the release of five new 1200CM Series code cards:

C101-LSDA "LSA" Keyway, CMC51A-Kawasaki 7-



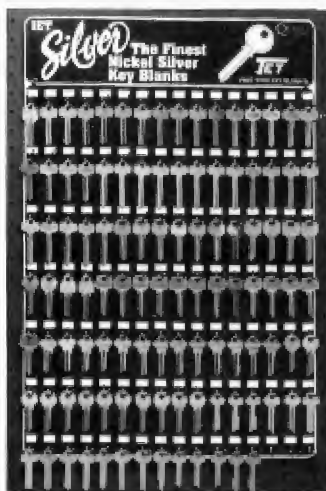
Cut (A, B Series), CF301-Kia/Hyundai 7-Cut (X, Y Series), CF302-Hyundai 8-Cut (S, T Series), CF303-Ford Aspire (Kia) 10-cut (B Series)

HPC now has over 120 code cards available, including the 7 Pin Best, Kwikset Titan and the Double Sided GM!

For **FREE** Information
Circle 214 on Rapid Reply

New Jet Silver Line Assortments

Jet Hardware's new Silver Line is now available in two different assortments along with a very distinctive black, gold and silver display board.



Model SBA-94 is made up of 470 pieces, 94 commercial and institutional nickel-silver key blanks. Model SBA-112, consisting of 560 pieces is

identical to the SBA-94 and includes the most popular nickel-silver Safe Deposit key blanks that Jet Hardware currently manufactures.

For a limited time, Jet is offering their new, very distinctive Silver Line display board. The board is manufactured from a durable, 1/8" tempered masonite and measures only 16"x24". Finished in a black background with gold and silver colors added, the display board will add a very distinctive luster and sales aid to any locksmith shop.

For **FREE** Information
Circle 215 on Rapid Reply

Blue Camel Key Management Software

Blue Camel Software is foremost in introducing two new programs written for Windows on PC's to fill the growing demand for better locksmith software. The first program, Administrative Key Log, assists the locksmith in managing key tracking for each customer. The second program, Key Log, can be sold by the locksmith to customers who wish to keep their records on site.

Some features are: Person, Key and Lock Lists on one screen, Easy Person-Key-Lock Assignments, Bitting, Pinning, Lock Service Tracking, Record History, Record Import/Export and Password Access.

These programs keep the data organized, helping the locksmith save time and money.

For **FREE** Information
Circle 216 on Rapid Reply

New Tech-Train Videos

Tech-Train Productions is proud to announce the release of several new video tapes.

Tape #569 - Automotive Lock Servicing Update #1.

Covers the new GM 10-Cut ignition locks and the MATS steering columns. Includes methods of removing, rekeying and repairing the new GM 10-Cut ignition locks. Also covers disassembly and reassembly of MATS (Mechanical Anti-Theft System) steering columns.

Tape #577 - Car Opening Update #6.

Covers opening procedures for all of the new models for 1994 model year, plus new methods for the Chevrolet Caprice and Mercury Villager.

Tape #578 - Basic Locksmithing #1.

This tape is designed for the beginning or trainee locksmith. Subjects covered include disassembly, service and reassembly procedures for the most common knob locks and deadbolts. This video also gives the viewer an introduction to important techniques such as picking, shimmying and masterkeying. These subjects and more will be covered in greater detail in future videos. This tape is the first in a series designed to train the beginning locksmith.

For **FREE** Information
Circle 217 on Rapid Reply

The Pocket Socket By PowerStar

The Pocket Socket, an eight-ounce, pocket-sized power inverter from PowerStar Products, Inc., that plugs into the cigarette lighter of the vehicle of your choice and lets you run appliances ranging from lights and small drills to TVs/VCRs, computers and fax machines.



The Pocket Socket converts a vehicle's 12-volt DC battery to the same 115-volt AC power that comes out of your electrical outlets at home. Thanks to advanced high frequency switching technology, it is most compact, lightweight product of its kind on the

market—roughly the size of a garage door opener.

The Pocket Socket provides 100 watts of electricity, enough for most ordinary needs. The Pocket Socket delivers 800 watts of ultra-surge electricity necessary for starting up PCs, TVs/VCRs and small power tools.

For **FREE** Information
Circle 218 on Rapid Reply

Titan Competitive Cylinders

Kwikset Corporation introduces the Titan competitive cylinder program. Kwikset research shows that when replacing existing locks, consumers typically purchase the same brand because they want to ensure compatibility with their existing keys. Titan's unique front removable cylinder makes keying and installing competitive cylinders fast and easy, allowing the use of competitive keys in Titan locks.

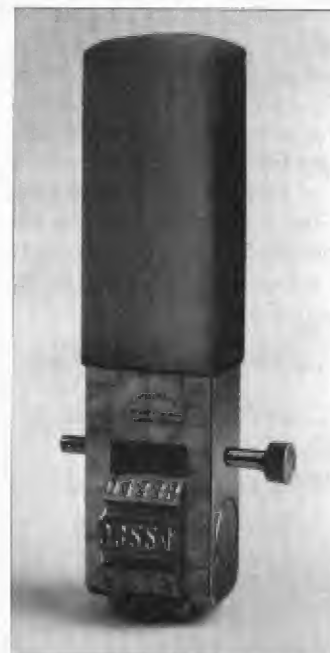


The Titan competitive cylinder program contains an assortment of interchangeable competitive cylinders which allows locksmiths to reduce their inventory of competitive products while expanding the base of customers that can be served utilizing Titan products. Reducing total inventory and increasing Titan inventory turns improves overall profitability for the locksmith. Competitive cylinders are currently available to match Schlage, Weiser Lock, Master Lock, Weslock and Kwikset keys.

For **FREE** Information
Circle 219 on Rapid Reply

New Numberall Numbering Machine

Numberall Stamp & Tool Co. Inc. has expanded the Model 60 Numbering Machine to 5/32" and 3/16" size characters. The Model 60 is a hand held numbering



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machine available with up to five wheels. A larger frame and larger diameter wheels have been incorporated for the larger characters. It is ideal for stamping keys, brass tags, machine parts, identification codes and many other uses.

Because of the simplified construction, the Model 60 offers an economical price. The Model 60 is hit with a hammer blow. The wheels are locked in position with a pin, which seats in the frame. The wheels can be quickly set to any code by easily removing the pin and rotating the wheels.

For **FREE** Information
Circle 220 on Rapid Reply

GunVault®, Inc.'s Rapid-Access MiniVault

Gun Vault, Inc. is introducing the MiniVault™ and MultiVault™ rapid-access safes.

Suitable for use in homes, hotels, automobiles, water craft and recreational vehicles, the GunVault gunsafes were originally developed to meet various legislation mandating safe gun storage. At the same time handgun owners demand safes that permit rapid and easy access.

GunVault safes deliver both security and convenience for handgun storage as well as small documents, computer disks, cameras,



credit cards, jewelry and other valuables.

An all-new keyless locking mechanism permits operation by touch, even in the dark, and allows for more than 40,000 re-programmable, 3 or 4 digit, user selected access codes. User fingers are guided to the proper position on the touchpad by raised Braille-like dots. The code is entered and the door springs quickly and quietly open.

For **FREE** Information
Circle 221 on Rapid Reply

Sign Up For Home Security Check-Up Program

The Security Professional Council (SPC) has launched the Free Home Security Check-Up program to consumers nationwide.



According to Don Bradford, chairman of the SPC, thousand of locksmiths across the country have registered to participate in the Check-Up program and provide free residential security audits for consumers upon request.

To support the program, America's leading crime prevention figure, JJ Bittenbinder, will appear on television talk shows, in newspaper articles and radio interviews. As spokesperson for the Check-Up program, Bittenbinder will inform consumers about the program and promote the toll-free number.

The toll-free number is equipped with a special staff to answer the Check-Up line and provide consumers with names of participating locksmiths in their community. To help locksmiths perform the Check-Up, an official check-list is available.

To find out more about the program, learn how to get involved and receive a kit of materials circle the reader reference number below.

For **FREE** Information
Circle 222 on Rapid Reply

Vindicator's Vindicator Lock II

The Vindicator Lock II features a two-step access



method, using an electronic key plus a personal identification number (PIN) to identify users reliably and verify their access privileges. This makes access easy for authorized users, but extremely difficult for thieves. The system logic board keeps a detailed audit trail of the most recent 4700 events. The system can be connected to a remote, or local, computer using Vindicator's Client Software so that time locks, time delays, and other access parameters can be centrally controlled and activity reports retrieved. The lock can also be controlled from the front panel and the audit trail can be retrieved from the front panel or an attached printer.

For **FREE** Information
Circle 223 on Rapid Reply

Body Guard 5000 By Lion Security Products

The Body Guard 5000 is also a personal safety alarm with the added features of a built in powerful flashlight, strobe light and compass. The 125 decibel pulsating siren is to ward off a possible attacker or to use as a distress signal that can be heard up to half of a mile.

With the push of a button you can activate the alarm signal and it can sound off for up to eight hours.

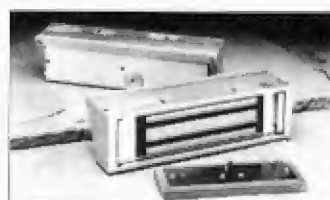


The Body Guard 5000 operates off a nine-volt battery (not included) and fits right in the palm of your hand or in your pocket. It weighs five ounces with the battery.

For **FREE** Information
Circle 224 on Rapid Reply

Security Lock Stocks Locknetics' Pentagon Series

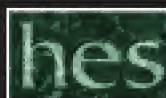
Security Lock Distributors offers a complete inventory of Locknetics' Pentagon 100 Series that merges access control with electronic auxiliary locking capability in one unit. The Series includes five models with superior holding strengths of 1,500 to 1,650 pounds.



Combining access control and electronic auxiliary locking, the Locknetics' Pentagon 100 Series is a new generation of micro-processor-controlled electromagnetic locks. The Pentagon Series provides on board logic for TouchEntry access control readers, and the integrated design means reduced installation costs. The new Locknetics Series also meets the security demands of most facilities.

For **FREE** Information
Circle 225 on Rapid Reply





THE ARROW GRADE 1, H SERIES KNOBSET

Test Article #62

by Giles Kalvelage

In addition to the Grade 2, M series locksets reviewed last month, Arrow Lock also manufactures a line of industrial grade architectural hardware. Among its line, Arrow's Grade 1, H Series knob lockset is designed for heavy duty commercial and industrial use. Manufactured of steel, brass and alloy construction, it is rated for Class A fire doors.

Identification

The Arrow H Series knob lockset can be identified by the Arrow name on the latch faceplate. Also, the inside rose has no visible spring catch or mounting screws holding it in place.

Removal

When removing the outside knob for service, unlike the M Series lockset, it is necessary to turn the lock cylinder 90 degrees to depress the spring catch to remove the outside knob.

After the knob is removed gently unsnap the tailpiece from the back of the lock cylinder. (See photograph 1.)

To remove the knob sleeve, gently rap the stem of the knob against a solid surface. This works the knob sleeve loose so that it may be removed from the back of the knob. (See photograph 2.)

Photograph two shows a mini-anvil for a solid surface, but if you are prone to a heavy hand, it may be wise to use a strong piece of scrap wood to protect the knob.

To remove the lockset from the door, using the Arrow spanner wrench



1. Remove the tailpiece from the back of the lock cylinder.

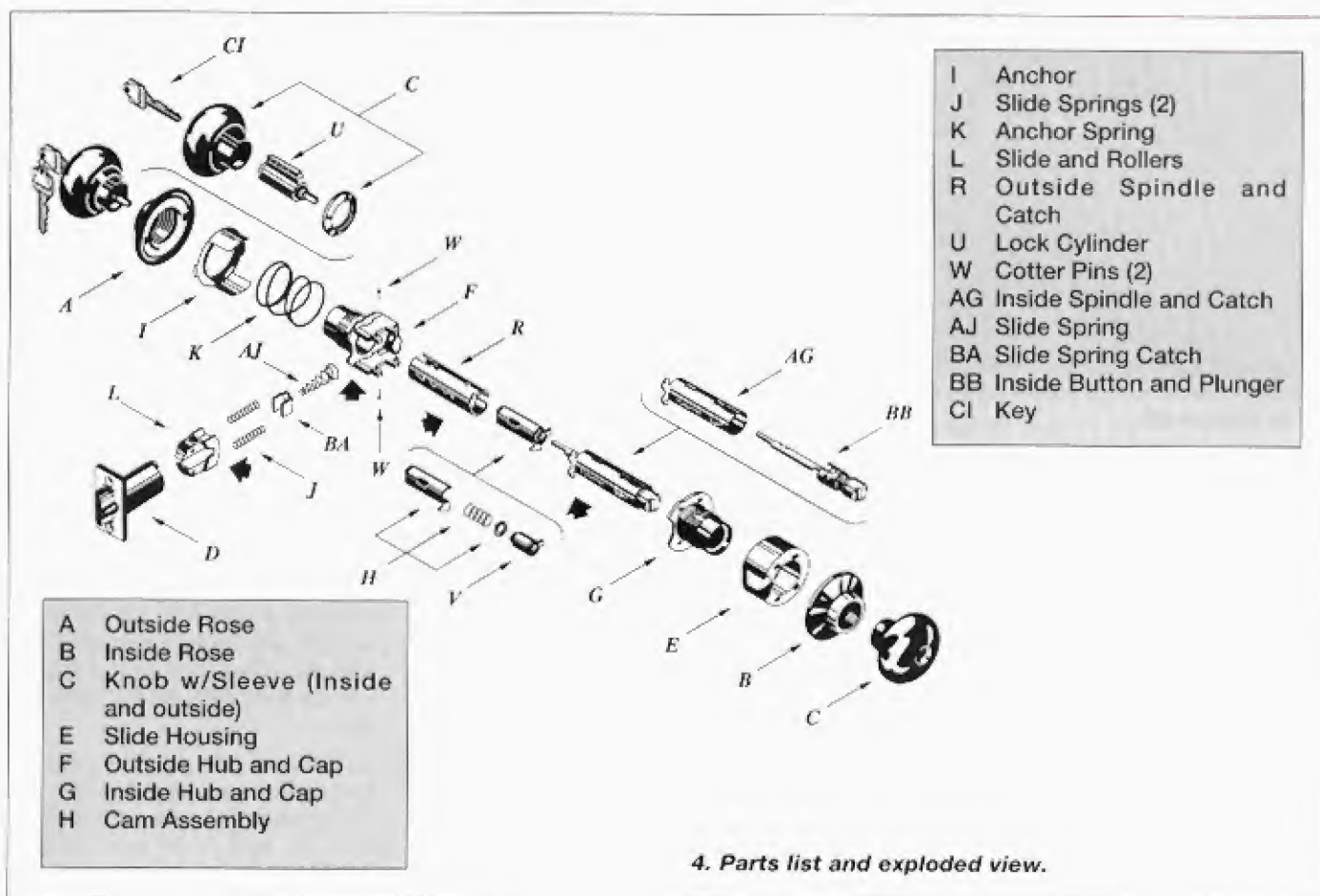
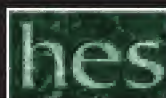
or probe, depress the inside knob catch and pull the inside knob off of the spindle. Using the spanner wrench, unscrew the inside rose from the lockset. (See photograph 3.)



2. Gently rap the stem of the knob to the remove the knob sleeve.

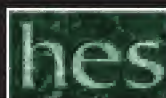


3. Use the Arrow spanner wrench to remove the inside rose.



Lockmasters has a 44 year history of training security professionals.

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5. After removing the cotter pins, lift the slide housing off of the spindle.



6. Remove the inside spindle assembly.

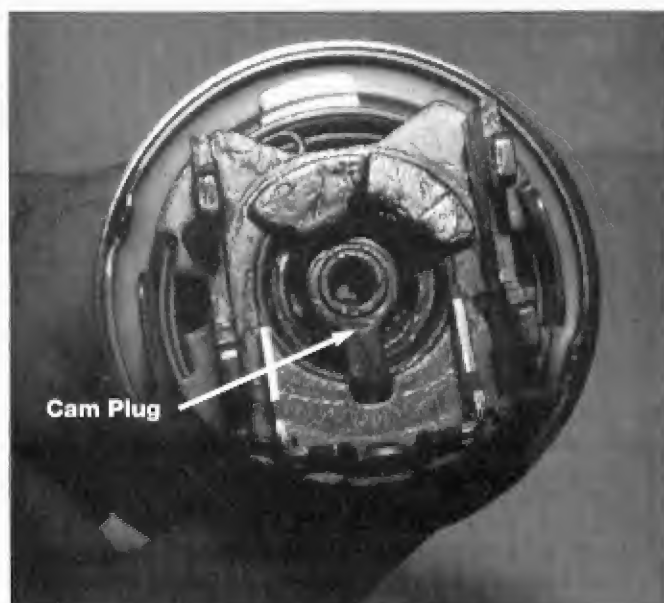
Remove the lockset from the door by pulling the outside knob or chassis out from the front of the door. Remove the two mounting screws from the faceplate of the latch or deadlatch and remove the deadlatch. Install in reverse order.

Lockset Disassembly

For sample purposes, we will disassemble the Entrance and Office function H11 Knob Lockset. See illustration four for an exploded view and parts list of the H11 Lockset.

Procedures:

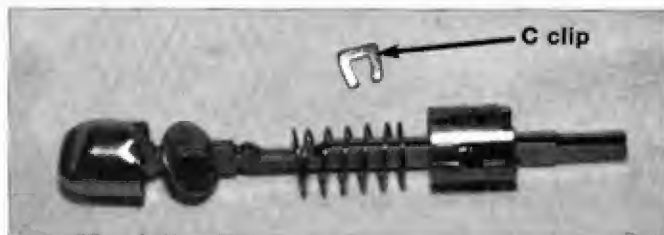
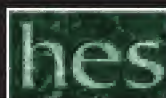
1. Depress inside catch and remove inside knob.
2. Remove inside rose.
3. Remove the cotter pins holding the slide housing.
4. Slide housing off spindle. (See photograph 5.)
5. To remove the inside hub and cap, first slide the hub and cap away from the latch side of the lock, disengaging the tabs from the outside hub and cap.
6. Gently lift out the slide and rollers, using caution not to loose the slide springs.
7. Lift or drop out the outside cam assembly and cam plug from the outside spindle and catch assembly. (See photograph 7.)
8. If it has not already been done, remove the outside knob from the outside spindle and catch. The catch can be released with a probe from inside the spindle. Once the catch is released, pull outward on the knob.
9. To remove the outside spindle from the rest of the assembly, slide the spindle and catch through the frame and outside plate. It will be necessary to release the catch from the inside with a probe.
10. To disassemble the outside chassis assembly, unscrew the outside rose from the outside hub and cap. The anchor and anchor spring will slide off the hub and cap.
11. To remove the spindle from the inside hub and cap depress the inside catch from the inside of the spindle and pull the spindle through the assembly.
12. Should it be necessary to remove the inside button and plunger from the inside spindle and catch, gently pry the tongue downward behind the button and slide outward from the spindle. (See photograph 8.) Remove the "C" clip from the plunger to gain access to the plunger spring or button. (See photograph 9.)



7. After removing the slide and springs the cam plug can be removed.



8. Depress the small tongue to remove the inside button and plunger assembly.



9. The "C" clip that holds the plunger together.

Reassemble in reverse order.

If no key is available, and picking or impressioning a key is unsuccessful, the outside knob can be removed and disassembled once the lockset is removed from the door.

Cylinder Servicing

To disassemble the Arrow cylinder for rekeying or servicing:

1. Unsnap the tailpiece by gently rocking it off of the cylinder plug. If using a plug follower that fits over the tailpiece, this step is not required
2. Remove the "C" clip from the back of the plug with a screwdriver or other tool. The Kwikset removal tool works well for this.
3. Turn the key in the cylinder and

carefully slide the follower through the shell.

4. Rekey or service as necessary, reverse the procedure to reassemble.

Keying

The Arrow H Series locksets come standard with an Arrow K7 keyway. Other keyways are available such as Schlage C and E, both drilled for six pins. Many of the functions of the H Series locksets can accommodate Best style interchangeable core cylinders.

Standard factory original Arrow



10. The Arrow key with bitting stamped bow to tip.

keys are now shipped with the bitting stamped from bow to tip. Older original factory cut keys were marked with the bittings from tip to bow. (See photograph 10.)

Refer to last month's article on the Arrow M series lockset for key and tumbler specifications.



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AUTOMOTIVE SECURITY

MERCEDES SL600, PART 1

Test Article #63

by Michael Hyde

In the past few years Mercedes-Benz has come out with some very unique and complex locking systems, but also have made some changes to make life a little bit easier for the locksmith. The model I surveyed is the 1994 Mercedes-Benz SL600. (See photograph 1.)

All Mercedes are broken down by the chassis number the car is built on. The VIN plate on the driver's door jamb tells you the chassis number. The car I surveyed was chassis 129. I found that chassis 129 and 140 are the same as far as the locking system's general design. An example of models that use the 129/140 chassis are the "S" Class models such as the 300, 380, 400, 420, 500, 560, 600, S, SL, SEL and SEC. The 129/140 chassis uses the standard Mercedes 4-Track keyway. All Mercedes are now equipped with a factory alarm.

Opening Techniques

The latching systems on these models incorporate a heavy plastic shield. The linkage rods are not easily accessible. The best way to open the 1994 Mercedes-Benz SL600 is by using an across-the-car tool or an inside-access tool to grab the lock button inside the vehicle. I used an across-the-car tool to open the SL600.



1. The Mercedes SL600.

As a word of caution, some models use a type of door that has a child safety sensor built into the power window, when pressure is applied to the window glass during closing, the glass will reverse direction. Wedging the rear door on these models may damage the sensor and the window will not operate properly. It is expensive to repair. You cannot be over cautious when it comes to opening late model Mercedes-Benz cars.

Ignition Lock

Mercedes has thrown a new twist into servicing the ignition lock. The cylinder cannot be removed from the front of the lock housing. The ignition lock assembly must be removed and disassembled to allow the cylinder to be removed out the rear of the lock assembly tube. (See photograph 2 and 3.)

Photograph four shows two different ignition lock assemblies



2. The Mercedes dash mounted ignition.



3. The complete ignition lock assembly.



4. These ignition assemblies are made up of a steering lock (mounted to steering column), the assembly tube (aluminum or plastic), electrical switch, lock shaft, and bezel.



5. The cam in the steering lock assembly must never be turned from any other position than the first detent or ACCESSORY position, if turned the steering lock anti-theft system will engage.



6. When not on the vehicle, the steering lock anti-theft mechanism can be reset by inserting a probe into the access hole at the end of the assembly.

currently in use. Both systems share the same key cylinder, electrical switch and actuator lever. The lock on the left uses an aluminum assembly tube and the lock on the right uses a plastic assembly tube. The aluminum tube was used until October 1991. The plastic tube was put into use beginning in November 1991.

A newer version of the plastic assembly tube and steering lock (not shown) was introduced in March 1993. The design change of the plastic tube is to

enhance the anti-theft capabilities. The steering lock, assembly tube and bezel are not interchangeable with the previous version ignition assemblies.

The steering lock is a security feature of Mercedes and is designed to permanently lock the steering shaft should the ignition lock cylinder or assembly tube be forcibly or incorrectly removed.

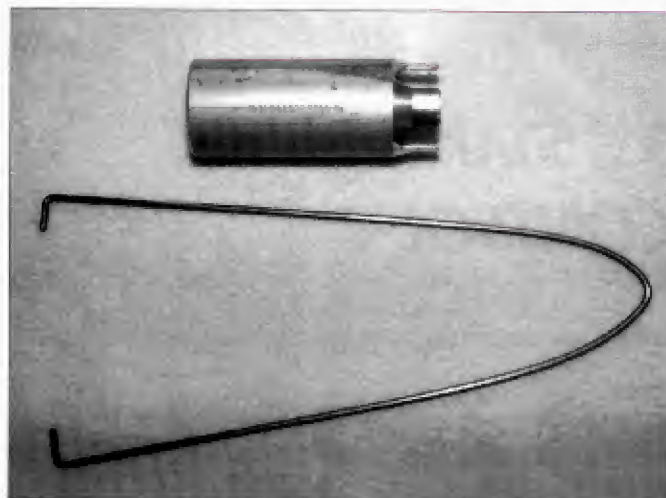
Inside the steering lock is a cam that is driven by the ignition lock and lock shaft. (See photograph 5.) This cam is spring loaded and is depressed and held in place by the lock shaft. Should the ignition cylinder or assembly tube be forcibly or incorrectly removed, the cam is forced forward and turned, firing the steering lock anti-theft mechanism. At this point the lock cannot be disengaged while on the vehicle and Mercedes service procedures require totally destroying the steering lock assembly for removal. In short, if this happens, you're stuck.

To properly remove the assembly tube the lock cylinder must be turned to the first detent or ACCESSORY position. This places the steering lock

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7. Pictured is the home-made tool allows you to depress the two retaining pins for removing the assembly tube from the steering lock assembly, and the lock bezel removal tool.

cam in a position that does not allow it to permanently lock, and releases the two assembly tube retaining pins for assembly tube removal. (See photograph 5.)

Photograph six is an end view of the steering lock, there is a small access hole on the upper-left section. If the anti-theft system has engaged while this unit is out of the vehicle, pushing a probe into the access hole will allow you to reset the steering lock cam to the first detent or ACCESSORY position.

Photograph seven shows the home-made wire tool used to depress the retaining pins of the steering lock so the assembly tube can be removed. Remember, the key must first be turned to the first detent or ACCESSORY position for removal. Also shown is the ignition lock bezel removal tool. This tool is used to unscrew the bezel that surrounds the face of the lock cylinder and can be purchased from Mercedes as part #129-589-00-07-00.

Photograph eight is a look at the disassembled ignition lock cylinder. The cylinder is extremely difficult to disassemble without damage. I recommend replacing the cylinder instead of rekeying. The cylinder can be ordered matched to the car, from the dealer.

To Remove The Ignition Lock Cylinder:

- Disconnect battery.
- Remove necessary trim and dash

- Unplug the electrical connector on the bottom of the assembly by depressing the securing tab and sliding toward the back of the vehicle.

- For cars with automatic transmission, unscrew the "Bowden Cable" (key/shifter interlock cable) from either the aluminum or plastic assembly tube. Do not bind the cable.

- Use the home-made wire tool (see photograph 7) to depress the retaining pins on the steering lock where it joins the assembly tube and remove the assembly tube from the steering lock unit. Do not force the unit as it is designed to break and permanently lock when too much force is applied.

- Once the assembly tube has been removed, slide the black plastic electrical switch out from the back of the assembly tube.

- The key cylinder



8. The disassembled ignition lock.

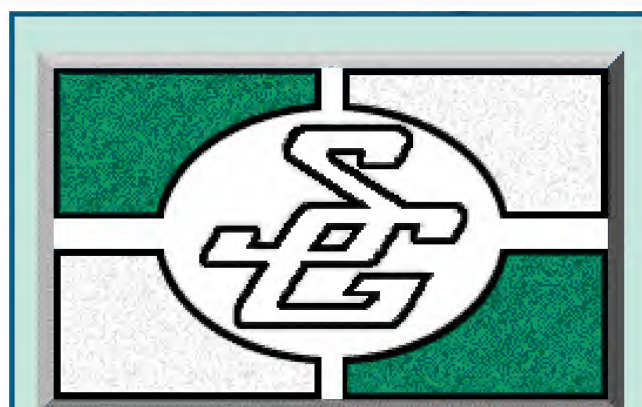
pieces. (See Mercedes service manual for proper procedure.)

- Turn ignition key to the first detent or ACCESSORY position.

can now be removed from the rear of the assembly tube by inserting a wire probe and depressing the retainer on the cylinder. The key must be turned to the first detent or ACCESSORY position to depress the retainer.

- When reinstalling the assembly tube, be careful to keep the lock shaft and steering lock cam in the first detent or ACCESSORY position. Moving the cam in any way will cause the steering lock anti-theft mechanism to activate!

Next issue we'll cover the Mercedes door, trunk and console locks.



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ELECTRONIC SECURITY

WINFIELD'S STAND ALONE ACCESS CONTROL

Test Article #64

by Tom Seroogy

Taking a break from our series on wire, we want to look at an adaptation of electronic technology for access control. In this case, it is Winfield's Microkey stand alone door access unit.

For years Winfield has been known for the unique key and cylinder system used throughout this country's hospitality market (hotels, resorts, etc.). Their Microcard system, sister to the Microkey, is also a unique and successful electronic lock serving the security needs of the hotel industry. Making some minor software changes to accommodate the commercial and locksmith market, the Microkey system is a welcome addition that offers locksmith customers a high degree of security at a reasonable cost.

While the Microcard offered increased security to hotel guests, the locksmith's Microkey offers an expanded, more versatile system that includes audit trail, masterkeying

capabilities, thousands of individual users, dual key capability, easy installation and dealer/locksmith restricted keying. The best part, however, is the low investment needed to get started.

The Microkey system is comprised of three components: the programmer/encoder, the lock, and the Microkey key. (See photograph 1.)

The programmer/encoder is used to program the system information into the Microkey key and lock as well as display any information retrieved through the audit trail retrieval key. The encoder displays the selected menus on an LCD display for easy programming of the key and lock. The battery operated unit can be used while seated on its battery-charging base or carried from site to site. (See photograph 2.)

For locksmiths with computers, software and a key encoding adapter are available and can take the place of the encoder. Missed, however, is the convenience of having a programmer on-site.

The lock for the Microkey system comes in either mortise lock or tubular lock design. Both models employ the large ADA approved levers and escutcheon plates. The control panel or brains for the unit as well as the battery pack are mounted to the inside escutcheon plate for security.

The power for the unit consists of a battery



1. Winfield's Microkey mortise lock and encoder.

pack made up of four AA 1.5 volt standard batteries (alkaline or similar batteries may be used). The Microkey lock warns of low battery conditions a month in advance of a dead battery. A constant beeping after using the lock indicates a low battery status. Should the batteries become dead a battery probe is used in conjunction with a working key to gain entry. (See photograph 3.)

The mortise lock version easily retrofits existing mortise lock door preps with the addition of a cut-out



2. Encoding a key.



3. Both the battery and control panel are part of this compact stand alone unit. Current models locate the control panel and battery pack on the inside escutcheon.

area above the lock case for the control panel and battery pack. Once the door is prepped, the lock can be mounted. The only wire termination necessary are the two plug-in connectors coming from the battery and lock thumbturn going into the control panel.

The final component, the key, is actually a small circuit board and memory chip mounted into a plastic head. These keys serve three purposes – to program the lock, retrieve information, and to be used as user keys. (See photograph 4.)

For programming, a programming key is inserted into the encoder. The necessary information for the lock being programmed is entered onto the key: e.g. lock ID, user ID's, time zones, etc. Once this information is entered onto the key, the key is inserted into the lock and the lock is programmed.

To retrieve an audit trail a query card or key is inserted into the lock and up to the last 1200 transactions are transferred to the card. The lock beeps, indicating that the transfer of information is complete. The key is then plugged into the encoder and the

information is displayed on the LCD screen or a hard copy can be printed if connected to a printer.

The user keys are simply those keys used in the system. Each key is given an ID and user number through the encoder. One of the programming features of the key includes dual key operation. In this application two keys must be presented to the lock within a prescribed period of time in order for it to open. This is perfect for higher security applications such as banks; drug and narcotic cabinets and rooms used in pharmacies, hospitals and doctor's offices; and high security storage facilities like police evidence storage rooms.

One of the unique and preferred qualities of the Winfield system is that each participating locksmith is designated as an authorized Winfield service center, giving them, what turns out to be, their own personal restricted system.

To avoid the possibility of duplicating systems and keys by two separate locksmiths or Winfield service centers within a given area, Winfield has given each encoder its own programmed ID number. This



4. Looking similar to a standard key, the Microkey key is a circuit board and memory chip with a plastic head.

number then becomes part of the programming on each key and lock. Only the locksmith or Winfield service center with the proper encoder can make changes, deletions or additions to an existing system.

While pricing will vary from distributor to distributor, based on standard industry discounts off of the suggested list price, the locksmith's cost on an encoder is approximately \$599, a mortise lock \$265, a tubular lock \$250 and keys \$3 each.

For more information contact Winfield at 800-562-5733 X401 or FAX 714-722-7029.



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BEGINNER'S CORNER

Easy Picking

Picking a lock is one thing that a locksmith is required to do almost every working day. A lock is picked to open houses, cars, cabinets, padlocks and anything else that has a lock. It is often needed to disassemble a lock when the key is lost.



by
Eugene Gentry

In order to become proficient, picking needs to be practiced to develop a feel of the lock and tools. Each locksmith will develop his own style. Some locksmiths prefer the pick gun, others prefer the standard picks, and still others will use the two interchangeably. Some prefer specific types of picks over others. As you practice you will be able to tell which pick tools work the best for you and which ones give you a better feel of what is going inside the cylinder.

One of the first steps to picking a lock is to make sure that all of the pins move easily. First, run a blank key in the plug to make sure it is not obstructed. With a straight edge pick tool lift all the pins, letting them drop one by one. You should be able to hear and feel if they are free. If the lock is old and dirty you may have to use some spray cleaner to loosen it up.

In any lock picking procedure, you have to visualize what is happening inside the lock. In a lock cylinder

there is a top pin, a bottom pin, and a third pin if the cylinder is masterkeyed, and a spring that holds the pins tight against the key. With an improper key or without a key the each pin's shear line will be above or below the plug shear line so the plug cannot be turned. The object of picking is to line up the pin shear line with the plug shear line. This allows the plug to be turned and the lock opened. (See illustration 1.)

For any lock picking, a tension wrench is used to apply turning pressure on the lock plug. Place the tension wrench in the top part of the keyway to give room for free movement of the pick tools. Generally, very light pressure is used. Tension wrenches are classified as light, medium, heavy and rigid. Here again is a locksmith's preference of which one works the best for him. My preference is the rigid as I seem to have more control.

One method of picking is to use the rake pick. Moving it in and out of the keyway quickly causes the pins to bounce above the shear line. The tension then holds the top pins until all are lined up. This rake pick can also be rocked up and down or moved in a figure eight motion. Some times this method will allow only three or four top pins to be above the shear line.

Without releasing the tension you can now use a hook pick to get the last pins into position. (See illustration 2.)

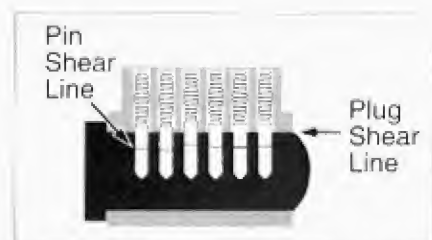
This pick allows you to move individual pins. If you find one that is bound, push upward until you feel the pin moving freely. When the pins feel weightless, lacking the spring pressure, they are in the picked position. When all the pins are at the shear line the lock will open.

Another method of picking is called top picking. Use the straight back side of a pick to push all the pins to the very top of the plug. Hold them with tension, then release the tension slowly while tapping on the lock, letting the pins drop to the shear line.

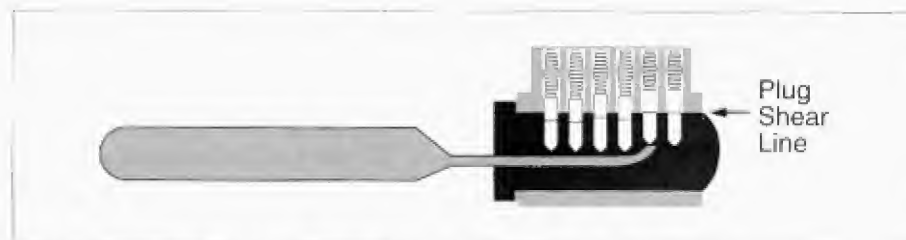
Many times when picking, you are applying tension both right and left because you are not sure which way the lock will open. There are times when the lock does open that it has been picked backward, and will not activate the latch. At this point, a plug spinner is used to spin the plug so fast it goes past the lock position to the open position. Several styles of plug spinners are on the market today.

Another method of picking is with the pick gun. Two types are available: The manual, which has a trigger and operates like a pistol, and the electric that uses rechargeable batteries.

Like hand picking, the locksmith needs to practice with the pick gun to become proficient. On the manual pick gun, the pick has to be inserted straight and level so the pins are hit all at the same time. The action that takes place when the trigger is pulled is that



1. In order to pick a lock the pin shear line must align with the plug shear line.



2. A hook pick is used to pick the individual pins in the lock.

Continued on page 102

Cover
Feature

MAKING OF A NEW PRODUCT

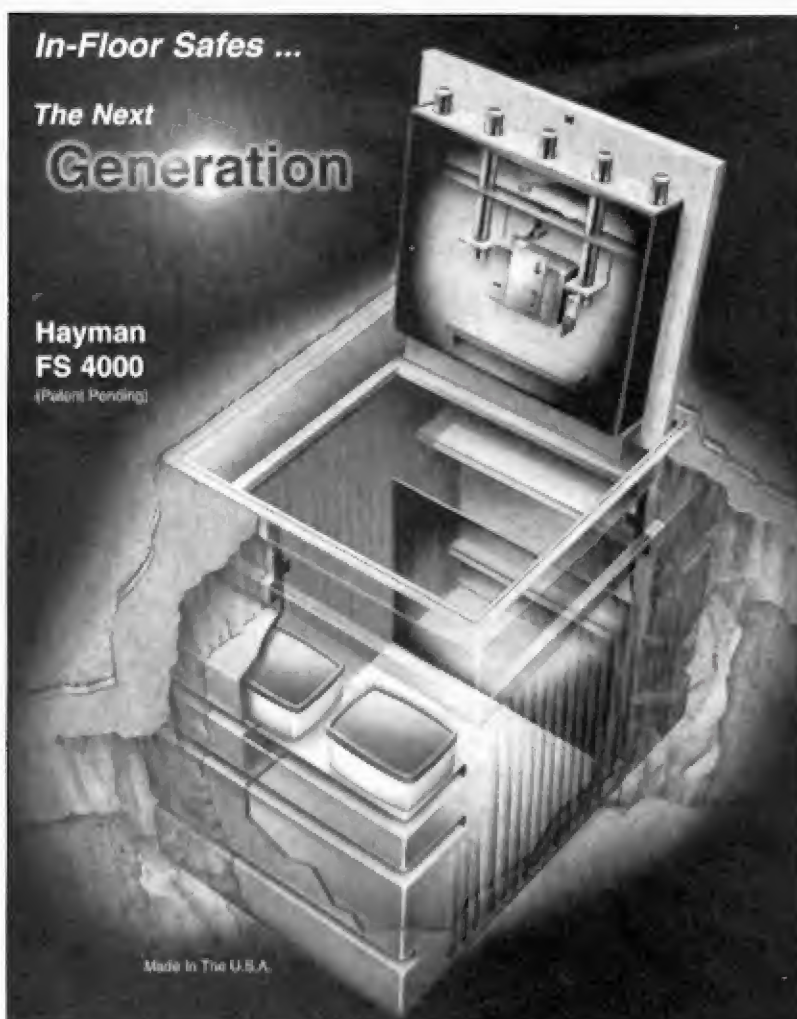
As locksmiths, it's not uncommon for us to begin a project or a job and, in our mind, develop tools and devices that make the job easier.

by Tom Seroogy

Every year locksmiths are introduced to hundreds of new products. Some are new concepts, some are not, and most fall somewhere in between. From where do they all come? Manufacturers, of course.

Recently, *The National Locksmith* had the opportunity to speak with Don Jenson, Marketing Director of Hayman Safe Company, about the manufacturing process - from idea to final product - of their new FS4000 in-floor safe. Remember, that while we may be focusing in on one product and manufacturer, all manufacturers and products go through the same process, be it picks, key machines, door hardware, etc.

As locksmiths, it's not uncommon for us to begin a project or a job and, in our mind, develop tools and devices that

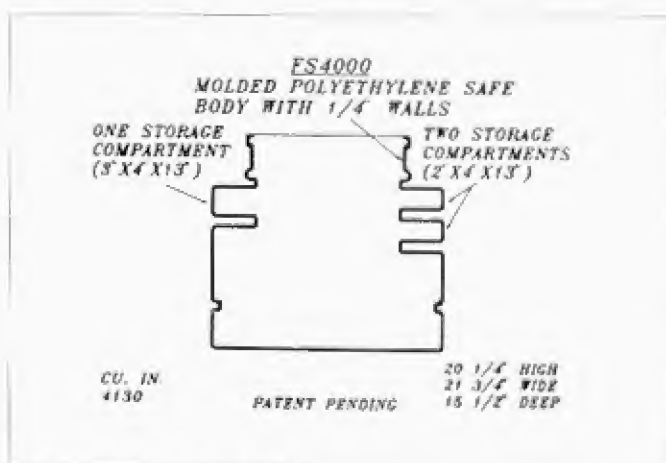


1. The Hayman FS4000.

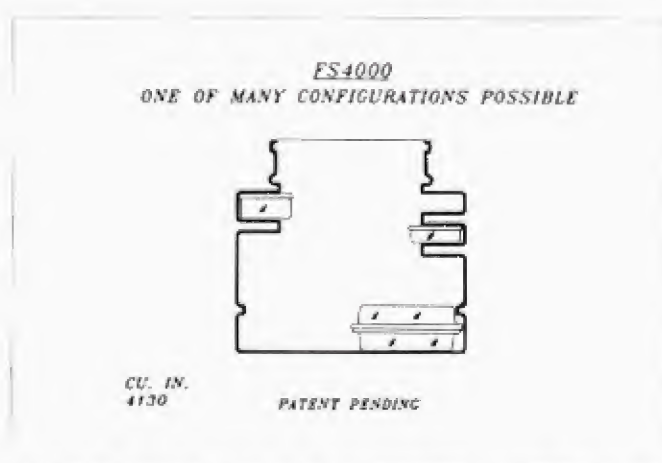
make the job easier. In fact, probably more than once you have seen an idea you thought of being manufactured and sold. The inception of all products begins with a need. The need to make a job easier, the need to make a product better.

From the need arises an idea, and from the idea, the product. In Hayman Safe's case, the need was two-fold and customer driven. Recognized was the customer's desire for a low cost or less expensive safe that still provided guaranteed protection. Also understood was the customer's need for a safe that allowed better utilization of the limited space.

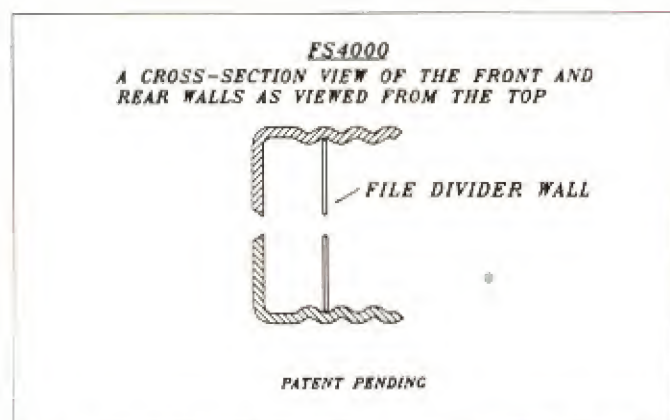
These two needs bore the idea and eventual production of a molded polyethylene in-floor safe - Hayman Safe's FS4000. The



2. Profile of the FS4000.



3. These compartments allow for convenient storage.

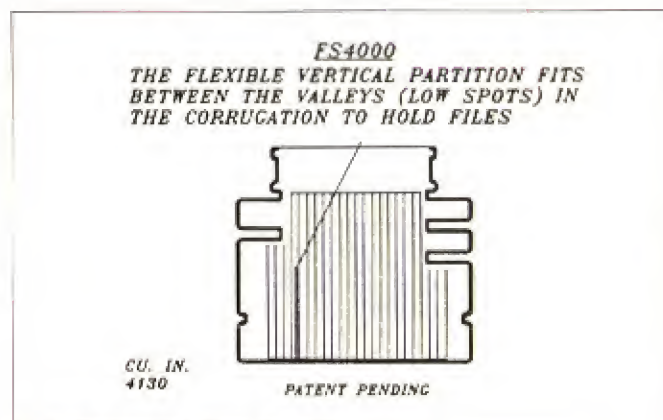


4. A cross section view from the top shows the peaks and waves that allow for file dividers.

exposed portion of the safe is made of steel, much like standard in-floor safes. Interesting concept, huh? (See illustration 1.)

Actually, polyethylene is a tough thermoplastic polymer derived from ethylene. Many other products including automotive parts, appliances, acid storage containers, gasoline tanks, and more are made from this material.

The obvious advantages, of course, include fast, quality production using a relatively inexpensive material and process. While the average in-floor safe costs approximately 25 cents per cubic inch to produce, this new, molded safe costs only 12 cents per cubic inch to produce. This, of course, meets the low pricing need of the customer.



5. Side view of file storage.

Still, is the safe secure, and does it provide adequate storage?

Storage System

The shape of the body provides a built in storage system with three easy access compartments. (See illustration 2.) Two of the compartments are 2"x4"x13" and one is 3"x4"x13". These storage compartments are possible because the body is formed from 1/4" polyethylene.

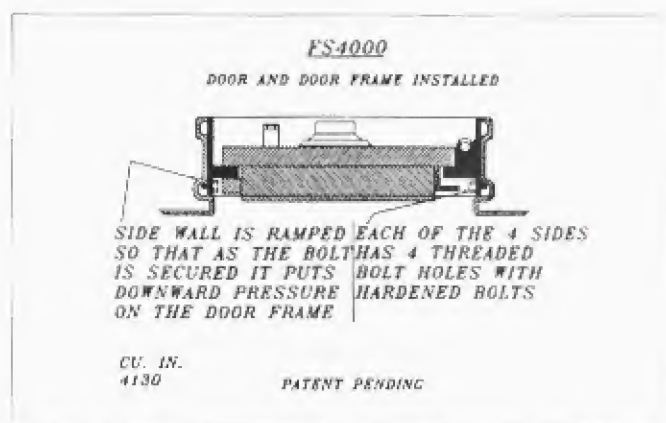
The compartments allow the user to easily store and conveniently retrieve items such as passports, photos, jewelry, weapons, etc. (See illustration 3.)

The compartments have been designed to allow for the

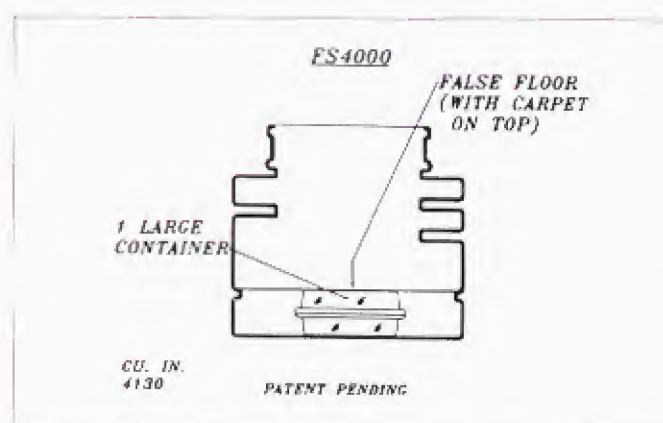
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6. Once buried in concrete, the metal door and collar provide both burglary and fire security.



7. A false floor is included for added security.



8. Container straight from the mold.

use of six standard size household containers. The containers, however, are not required to make use of the storage space. They just add a little more flexibility.

The peaks and valleys in the walls on two sides of the safe provide space for a filing system. (See illustration 4.) An adjustable divider wall wedges between the valleys of the corrugated walls. The divider wall easily "ratchets" between the valleys and provides a way to vertically store files in the safe and to snug them over against a wall. (See illustration 5.)

This design maximizes the capacity of the safe (4,130 cubic inches) as well as providing easy, neat and convenient use of space. The FS4000 can also hold legal files either flat on the floor or standing up with the purchase of a holder, available in most office products stores.

Adding another degree of convenience and security to the customer is Hayman's patented hinge system. Developed by Hayman, this hinge system has been added to their FS4000 in-floor safe doors allowing them to be removed without tools when the door is in the full open position. It also allows for different thickness doors and different designer color



9. The mouth of the container is trimmed to accept the collar or frame and door.



10. The doors and frames are welded ...



11. and finished.

doors to be exchanged with no tools.

Security

The plastic construction of the safe actually increases rather than decreases the security of the safe, according to the manufacturer. The many compartments of the unit allow concrete to flow between the partitions and every curve in the body. The shape of the safe gives greater security when properly installed in concrete, as the entire body acts as a flange. The polyethylene also absorbs sledge hammer attack and extends the time required to pound in the door.

Adding to the security of the safe is the metal collar and hinged door. The top four inches of the safe (the collar) is identical to their FS line of in-floor safes. (See illustration 6.)

This includes the 1/4" steel walls, reinforced dead bolt, huge door frame, solid 5-bolt locking system, 1/4" C-60 hardplate, dual relockers, S&G 6730 or LaGard 3600 locks.

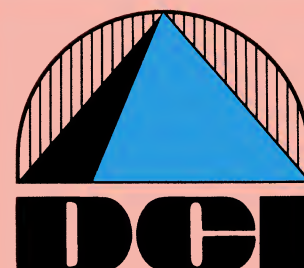
The collar, as seen in illustration six, fits inside the polyethylene walls and is seated on the body on all four sides. The collar is secured in place by 16 hardened bolts. The hardened bolts contact the ramped walls of the safe body but do not penetrate it. The reinforced dead bolt, bolt system and door frame make pulling the door nearly impossible.

The FS4000 was tested against severe sledge hammer attack, side access attack through the concrete and to a pulling force of 5,000 pounds using a fork lift.



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12. The frame is installed and fastened into the container.

For added security the FS4000 includes a false floor. The false floor is in two sections and is supported on either side by the safe wall and in the middle by one household container. (See illustration 7.)

Beyond Economic Incentives

From the very beginning there must be more incentives to produce a product than simply having a "better mousetrap." There must also be ancillary incentives for the end user, locksmith and distributor that are innate to the product.

For Hayman's FS4000 safe it's a filing and storage system, false floor and more. The light weight of the product reduces shipping costs. Installation can also be accomplished by one locksmith instead of requiring two because the safe body without the door weighs only 40 pounds.

In many cases, these types of incentives are often as important as the actual cost of the product. For manufacturers, incentives start in the "need" stage, requiring them to have a good grasp of the market - end users, distributors, installers, etc. - before they can decide on the best way to produce a product or to fill a need.

Drawing Board To Manufacturing

Still another challenge for the manufacturer is the manufacturing process. We were able to follow production of the FS4000 from start to finish.

First the storage container is molded. This process involves three steps: As one finished part is removed from a



13. Adding the door completes the safe.

mold, more polyethylene material is loaded into the mold. Next, heat is applied to the mold as it rotates on all axis' allowing the material to heat and melt evenly and thoroughly. Finally the unit is cooled in a water and air shower. (See photograph 8.)

The completed container is then trimmed, allowing for the door frame to be installed. (See photograph 9.)

At the same time the doors and door frames are welded together and finished. Hayman's steel parts are either plated or painted using a three step process for rust protection. (See photographs 10 and 11.)

The container, door frame and door are then assembled. The frame or collar is first inserted into the container and fastened with 16 hardened bolts. (See photograph 12.) And then the door is installed to complete the safe. (See photograph 13.)

Conclusion

As can be seen, manufacturers have a lot more invested in their product(s) than catalog sheets and sales reps. The truly successful manufacturer is always cognizant of the market need, is creative enough to fill that need, and can produce a quality product that exceeds the needs of the user, distributor and locksmith.

For more information contact the Hayman Safe Company at 1295 N. SR 426, Oviedo, FL 32765; or call (800) 444-5434.




 by
Tom Mazzone

VATS ALL FOLKS

In 1986 General Motors answered the call for theft deterrent with an ingenious bit of engineering known as VATS.

For years European manufacturers have integrated both mechanical and electronic means to increase the security of their automobiles. Dimple cut and sidewinder style keys are almost synonymous with the more expensive imported vehicles. Today there is worldwide testing of high-tech electronic security systems and locking mechanisms.

In the U.S. the interest and implementation of different keying and electronic systems has proliferated. General Motors answered the call for a theft deterrent with an ingenious bit of engineering known as VATS or Vehicle Anti Theft System. Introduced in 1986 VATS remained exclusively on the Corvette until 1988 when select Cadillac models adopted this system, changing its name to PASS or Personal Access Security System.

The PASS/VATS system is an electronic security system completely contained within the vehicle occupant area. There are no externally mounted, key operated switch locks or remote transmitters anywhere in the system.

The most noticeable difference is the ignition key which has a resistor pellet embedded into the blade of the key close to the bow. (See photograph 1.) When placed into the ignition this pellet comes into contact with two copper contacts in the ignition lock keyway, completing an electrical loop back into the PASS module.) When the key is turned to the ON position, the module reads the resistance of the key's pellet. There are 15 different resistance values possible.

If the resistance value is recognized by or matches the resistance value of the PASS module, the module signals the vehicle's Electronic Control Module (ECM) to supply ground to the starter circuit and to begin the fuel injection system's pulse action. With ground to the starter and fuel to the cylinders,

the vehicle should start.

However, even with a correctly cut mechanical key, if the resistance value of the pellet is not recognized by the PASS module the vehicle will not start. In this case the vehicle will not crank and, with the exception of all circuits having "full up" power, gives the same symptoms as a vehicle with a dead battery.

With this in mind, it is important to recognize a few conditions and circumstances that when generating a new PASS Key can cause a correct key to appear or operate as an incorrect key.

The first is a low battery. If the vehicle's battery is low or disconnected, even with a correctly cut key it will not start.

Second, the original VATS ignition lock suffered from some minor service problems that necessitated a design change. This change, starting in 1987, included a deeper throat on the ignition face cap and keyway and the accompanying key with a longer blade. When generating a key for a PASS/VATS vehicle, problems arise when the short-er, first generation keys are used on a second generation VATS ignition lock. Because of the shorter blade on these keys, the resistor pellet on the key is not inserted into the keyway far enough to touch the PASS module contacts.

While the first generation keys have long been superseded by the longer second generation keys, locksmiths working on a PASS/VATS system need to make sure they are using the proper keyblank. It should also be noted that the second generation key works on all PASS/VATS ignitions.

The third condition concerns PASS/VATS vehicles with manual transmission. These vehicles have a clutch/start safety switch installed and the clutch must be depressed to start the engine. Trying to start these vehicles without depressing the clutch

gives symptoms of a low battery or the wrong PASS Key. Too often a locksmith runs the entire gamut of PASS keys only to find that the clutch was never depressed.

The last condition in not recognizing a correct key is the time delay after a failed attempt. All vehicles using a PASS/VATS system have a delay or time-out period after the use of an incorrect key. During this time

the entire vehicle is shut down and cannot be started even with the correct key. Unfortunately, the length of this delay time has been the center of constant and unnecessary controversy.

Typically, a minimum of three minutes have to lapse after a failed attempt before any additional attempts



1. The GM PASS/VATS keys and ignition lock. Notice the resistor pellets in the key.

Continued on page 34

Continued from page 32

to start the vehicle are made. There is great debate on this subject with time periods varying from two minutes and fifty seconds to three minutes and thirty seconds. To be on the safe side most service manuals indicate waiting four minutes between attempts.

The time delay is probably the single best reason the PASS/VATS system has been such a successful theft deterrent. (Corvette thefts were cut by roughly 40 percent in VATS first year.) The reason: Even with a working mechanical key, the thief has 15 different pellet resistances to try. At four minutes per key, there may be a wait of 60 minutes before the car can be stolen.

As with most things, there is one known exception to the four minute delay time. This is on the 1990 Corvette. On these vehicles, the first three unsuccessful attempts result in a four minute delay. Every unsuccessful attempt thereafter requires a ten minute waiting period between attempts.

The time delay is internally controlled within the system's decoder module. There is no way to shorten or lengthen this time delay. There is no other timer relay within the system with which to alter or tamper, further complicating theft. Even if a thief were able to jump the starter or turn the ignition lock to ON and tried to push start the vehicle, he would not be able to input the signal to the ECM to pulse the fuel injectors. No fuel, no start.

During key generation, if an additional attempt to start the vehicle is made before the time delay is completed, the delay is brought back to zero. For example, if after waiting one minute and fifteen seconds, an additional attempt to start the vehicle is made, the delay is reset to four minutes. The delay is not cumulative. This is also why when choosing a decoder, a built in four minute timer is a nice feature. A wrist or pocket watch can be used with less expensive equipment.

PASS Key systems offer an excellent money making

opportunity for the locksmith. It can be extremely profitable and give you the competitive edge on your competition if you are willing to stock at least one each of the PASS Key blanks. Presently, only values two through fifteen are being input into vehicles but there are still some number one resistance value keys out there.

The next important investment is an "interrogator." (See photograph 2.) The interrogator unit inputs the varying degrees of resistance into the PASS system instead of cutting the correct mechanical code onto each of the different PASS blanks and trying them until one of them starts the vehicle. Expensive!

Optimally, the interrogator unit has a timer display to tell the operator when the four minute delay has passed, allowing further attempts if necessary. When working on the 1990 Corvette, simply activate the timer three times after the third unsuccessful attempt. Doing so allows a safe 12 minute delay.

To generate a PASS/VATS key

after a mechanical key is made, remove the lower knee bolster and find the PASS Key connector. The early style connectors had yellow wiring leads while the present wiring includes one orange and one white lead.

Disconnect this wiring connector and attach your decoder unit. Place the control knob on value number one and attempt to start the vehicle. If the vehicle starts, cut your mechanical key code on a key with resistance value number one and you are finished. Reverse order of disassembly to complete the job.

If the vehicle does not start, set the timer control switch for the four minute delay. When the time has elapsed, set the unit to the next resistance value and attempt to start the vehicle. Continue this procedure until the vehicle starts. That's all there is to generating a first key to PASS systems.

Some of the later model upper end General Motors vehicles made a wiring change in 1990 to incorporate their PASS wiring lead into a forty eight pin connector. This makes wiring location difficult and hard to service. A forty eight way connector adapter harness was introduced by Kent-Moore to thwart this problem but due to space limitations, it is not the easiest of methods. There are several adapters on the market to overcome this headache that allow the VATS resistance input through the mechanical key. In any case, do some investigating and find the one suitable for you.

With approximately 70 percent of GM vehicles incorporating PASS Key systems, it is a wise investment to expand your abilities into this lucrative area. Gather as much information as possible and get some experience doing PASS Key systems. Buy the correct equipment for the job and don't take short cuts or use make shift equipment. Electrical system repairs are expensive so be prepared with knowledge at all times. Put the right equipment and knowledge back into your business.



2. The Interrogator by Kent-Moore is just one of many available.





by
Dale Libby

BAD BOY BOLT ON A JOHNSON PACIFIC

If I had known what the correct problem was, the safe would have been opened in 10 minutes as opposed to 90 minutes.

One of the joys (?) of professional safecracking is the diagnosis of a locked safe, and then the consequent affirmation after successfully opening and repairing said unit. You always learn more when you are wrong. I learn a lot in my business and this is what I pass along to you my readers.

My latest endeavor was to open a mystery safe that had ceased to function. If I had known what the correct problem was, the safe would have been opened in 10 minutes as opposed to the 90 minutes that it did take.

The safe was a Johnson Pacific money container approximately 5' tall, 2' wide, and 2-1/2' deep. The dial on the door was a LaGard dial near the right edge of the opening side of the door. There was no bolt control handle, so I correctly assumed that the lock in question was the dreaded and diabolical QUAD bolt lock from LaGard. For those of you who are number oriented, this is the 2503 series quad bolt.

These locks were first encountered by me on several container doors used in shoe store chains. These safe units were in the floor containers with the combination lock dial in the center of the door. The doors were about 13" square and hinged with (or without) door springs. Each of the bolts had a relocker spring attached, and the back of the lock consisted of a large circular plate which held the relockers of each bolt in place.

I got very good at servicing these combination locks for the customers were always slamming down the safe door and causing the back cover plate to come loose, thus causing a relock-out.

Eventually a new type of locking system was added to these doors using a standard 3300 type LaGard lock and a bolt control handle. The



1. Representation of the Johnson Pacific safe using the LaGard Quad Lock and a Medeco Day lock.

QUAD bolt lock was also used on large safe doors. The only difference was the length of the locking bolts, usually the top and bottom bolt, with both side bolts being 4" to 6" inches in length.

Another interesting feature on these QUAD bolt doors was that only three of the bolts did the locking. The bolts on a standard right hand door are at 12, 3, 6 and 9 o'clock. The bolt at three o'clock locks nothing. It just slides into air. I found out the purpose of having four bolts however with a little experimenting.

Because of the way the wheel pack is secured to the door by the drive cam, the purpose of having four bolts is to balance the lock mechanism and hold it straight with reference to the entire lock mechanism. Without all the bolts, the lock mechanism is unbalanced. The lock may open easy, but it is hard to throw the bolts by turning the lock dial if it is out of balance.

This particular safe unit by JP also incorporated a pull handle and a "Day

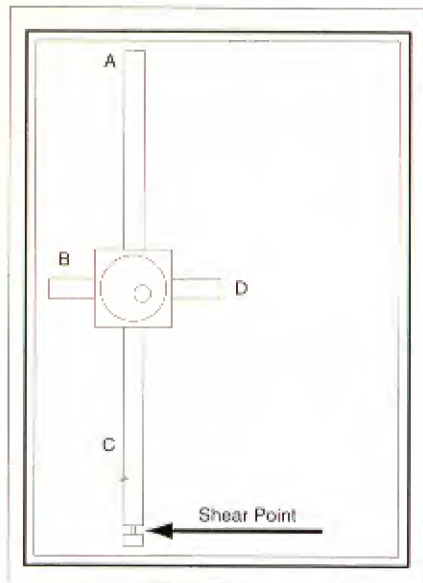
or Shift" rim lock in the upper left hand corner of the safe. The rim lock in this situation was a Yale night latch with a Medeco cylinder. (See illustration 1.)

Once before, I had to work on this lock unit, for the rim lock had broken. Turning the key elicited no retraction of the lock latch. It was possible to chisel off the screws that held on the cover to expose the rim mechanism and gain entry that way. The lock is used by shifts that are not allowed to know the main safe combination. They would open it in the morning and each assistant manager would have a key to the rim lock. At night, the dial would be turned and the safe completely locked. Only the manager knew the combination.

Unfortunately, this time there was another problem. The combination and the key lock were working correctly, but the door would not open. There was enough movement in the door to let me know that the door was not being jammed by a money bag, paper clip, etc. The combination worked correctly and the dial turned to the correct "stop" position. The relockers were set off or none of the bolts would retract.

Perhaps, one of the bolts had come loose and was not retracting, and thus not letting the door open. I decided to check each of the bolts in a logical order. I first drilled a 1/8" peep hole exactly 12" down from the dial center to check on the bottom 3' in length locking bolt.

I turned the opened combination dial to throw and retract the bolt. It was easily moving the required distance to be unlocked. Puzzled, I then drilled another one 1/8" hole 12" above the combination dial, turned the dial, and watched through the tiny hole (with an otoscope, of course) the upper bolt being thrown into the locked and unlocked position.



2. Bottom Bolt is reduced from 5/8" to 1/8" at shear point. Only bolts A, B, C lock the door. Bolt D only balances the mechanism.

I surmised that this bolt would move, if broken, just by gravity, and I was again perplexed. This is where fate stepped in. I decided to drill another peep hole for the active bolt at 9 o'clock. I ran into problems here. My drill bit went into the door so easily and quickly that I was not watching the angle of penetration. The drill bit broke about 1/4" below the surface of the door while being embedded in the opening bolt itself.

Now, with the broken drill lodged in one of the active bolts the dial would no longer turn and withdraw the bolts. I had to extract the broken drill bit before I could work on the door problem. I had effectively drilled the door to a locked position.

I know of no magic way to extract a broken "welded" drill bit, except by drilling a larger hole next to the drill bit and try to pry, beat, and coax it out gently. This does not work quickly. One of the reasons that I do not tighten a drill bit into the drill chuck is exactly for this reason. I have had an excellent penetration go awry when a bit had broken off. Sometimes I even have had to start over when I could not extract the broken piece of bit with a new hole in a less than perfect location. I am sure this has happened to you.

As with all, most safecrackers are willing to persevere, and eventually I extracted the broken bit, only to find

that this bolt was retracting the whole distance, as were the others. The bolt at 9 o'clock was somewhat scarred up, and it caused a slight bind, but it retracted fully. AHA, finally the correct insight. (MENZA Safecracker strikes again!!!)

I had only seen the bolts near the combination lock retract. For some reason, one of the bolts must have broken and was not retracting. I figured that it must be the bottom bolt, the one coming out at 6 o'clock from the combination lock body. I measured from the edge of the door to the center of the combination lock. I transferred this measurement to the bottom of the safe and went up 2".

The end of the bolt had to be in this position behind a locking block or raised obstruction. I had to drill no hardplate anywhere on this safe for I was not attacking the inner combination lock parts. When I looked into my 1/4" hole, I saw the bolt. I turned the dial and this bottom bolt did not move at all. I drilled a small dimple in the bolt and with the other bolts thrown into the open position, I raised the bolt fragment and the door easily opened. (See illustration 2.)

I was very surprised to see that there was a shear point on this bottom bolt. About 4" above the 5/8" bolt, there was a cut out. The bolt diameter at this point was only 1/8" in diameter. This is where the bolt was broken. That is what was holding the door shut.

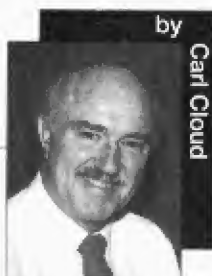
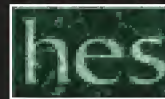
If you ever have a lockout like this caused by slamming the door shut with the bolts out, all that is needed is to drill in line with the bottom bolt and raise it up with the other bolts thrown.

I eventually replaced the bottom bolt with one that I had made in a machine shop. Until that time, the door operated without the bolt, although it was hard to throw the bolts, it was easy to open the lock. It would really clunk into the open position. I also changed the drilled active bolt with the bolt at three o'clock. Both worked fine. So, in conclusion, Drill, Improve, Persevere, and PROSPER!!!!



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by
Carl Clout

THE DIEBOLD ATM WITH DURESS

If you have never worked on a Diebold zero change lock with duress feature, the first time can be a little frustrating.

The bank had closed because of a financial failure. A new bank had acquired the building and planned to use the existing vault and Automatic Teller Machine (ATM). A gleaming stainless steel vault door had been left open and the combination was supplied by the vacating bank. The ATM was functional and all keys were present. The only thing lacking was the combination to the locked Diebold safe portion of the machine.

When I walked into the small room housing the teller machine and saw the Diebold door, a rush of memories flooded my thoughts. In my mind, I went back to the first encounter with this type of safe. The service order was to change the combination, a

quick and simple task. About two hours later, I had gained a lot of knowledge – all by trial and error. (See photograph 1.)

As with any other key change lock, I ran the existing combination numbers to the change index. This Diebold lock has a 'zero' change function, meaning the change index is the same as the opening index. To my surprise, the change key would not enter the wheel pack. Thinking perhaps I had ran the numbers incorrectly, I ran the combination again. The change key still would not enter. An inspection into the change key hole with a pen light verified that the change key cam of the wheel was not there.



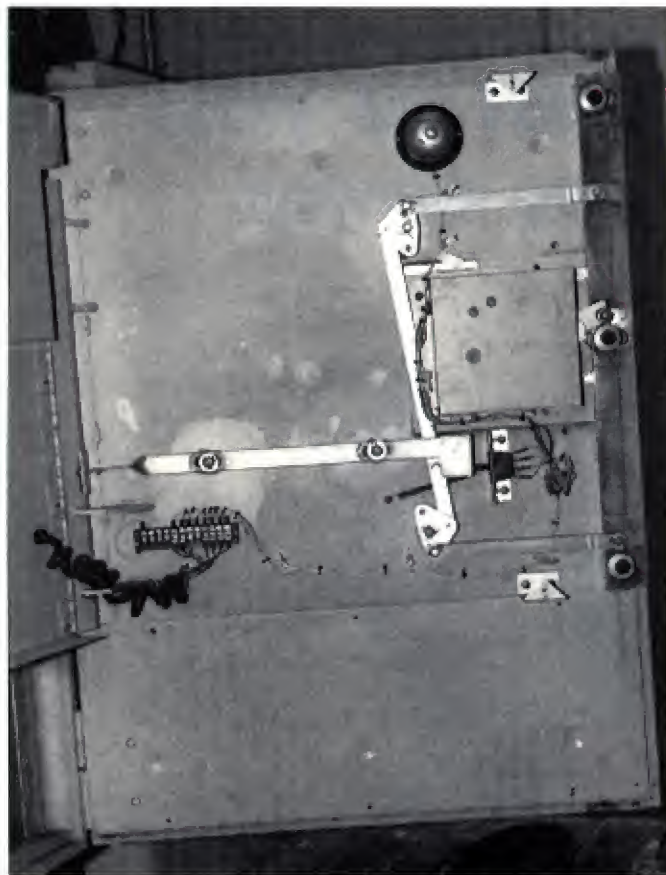
1. Diebold ATM safe.

... I couldn't figure out how to change the combination. It then became a matter of man conquering a machine. I had to take this thing apart and find out why it wouldn't change.

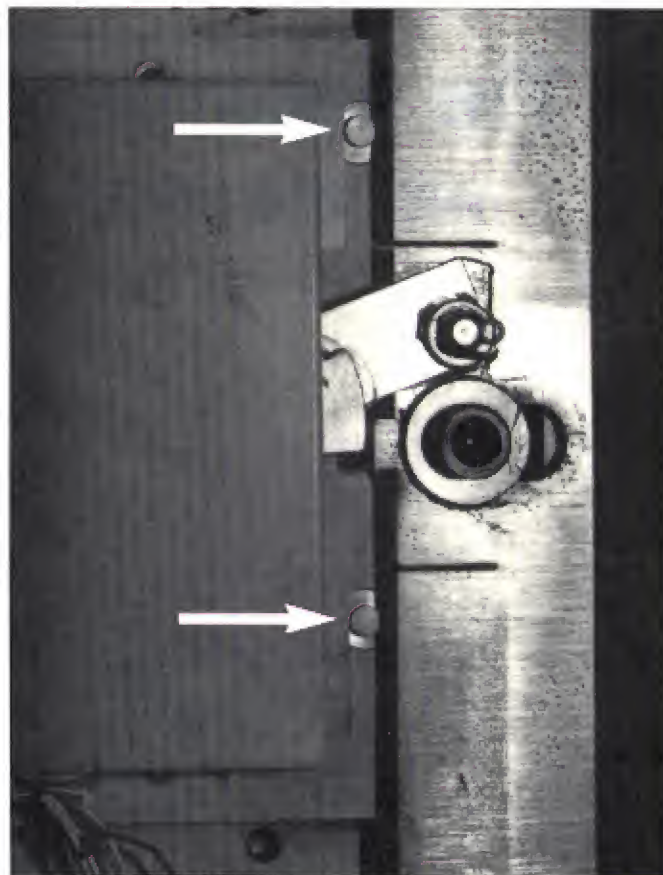


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2. The door cover has been swung away showing the bolt linkage, wires and switches.



3. Two shouldered relocker pins are secured by the tabs of the lock cover pan.

To confirm the numbers, I ran the combination and the safe opened. The dial was a top reading model without a change index line. It had to be a 'zero' change lock, but why won't the change key cams align to the change key hole?

To determine the number that would align a wheel change cam to the change key hole, I slowly rotated the dial until the cam was visible. The dial reading was ten numbers higher than the actual combination number. Aaaha! The change index should be ten numbers lower. I then ran the combination ten numbers under and peeked into the change key hole. The change cam of the closest wheel as aligned – the other wheel cams were not! What is going on here? I'm about to pull out what remaining hair I have!

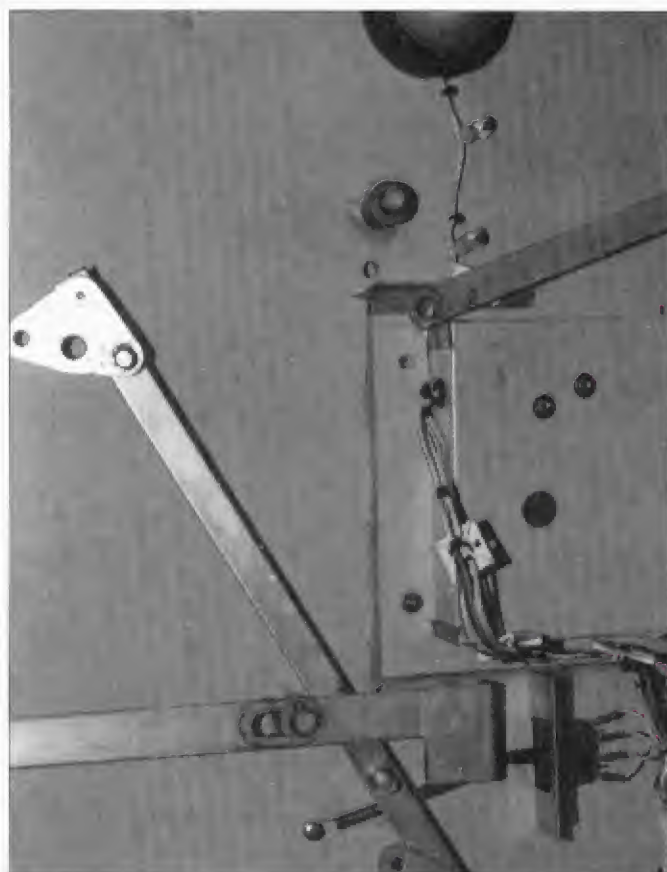
To make a long story short, I couldn't figure out how to change the combination. It then became a matter of man conquering a machine. I had to take this thing apart and find out why it wouldn't change. A couple of screws released the door cover and it swung away in its own hinges. Exposed was the linkage bars and an array of wires and switches. (See photograph 2.)



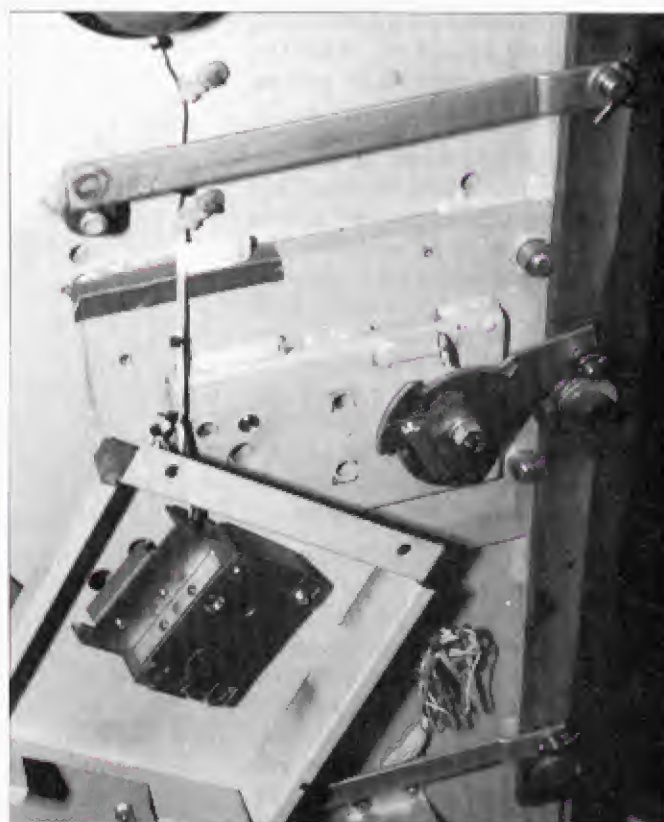
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4. The vertical connecting rod had to be disassembled to remove the final mounting bolt of the pan.



5. The lock and the pan have been unbolted from the door. Both are still connected by the wiring to the motion and heat detector. The two shouldered relockers are in the fired position.

A second cover or "pan" covered the lock case and the handle cam. The pan acted as a trigger for two relockers. In photograph three, the two shouldered, spring loaded relockers are shown in their retracted position. The two relockers are being held down by the two protruding tabs of the pan. When released, the relockers would prevent the long locking bar from being withdrawn to an open position.

To remove the pan, it required the disconnection of the vertical bar. The bar passed directly over a mounting screw for the pan. (See photograph 4. *How's that for engineering?*) Even with the pan unbolted, it is still captured by a strand of wires passing through it as seen in photograph five.

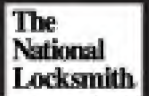
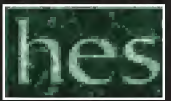
Upon removing the lock case cover I became aware of the function of the lock. This was a "silent alarm" or a "duress" feature lock. I had read about this lock but had never actually seen one. So, how does this thing work? (See photograph 6.)

If you look at the wheel pack at the left top corner of the case, you'll see a wheel gate. The lock is shown in an unlocked position - the lock bolt is

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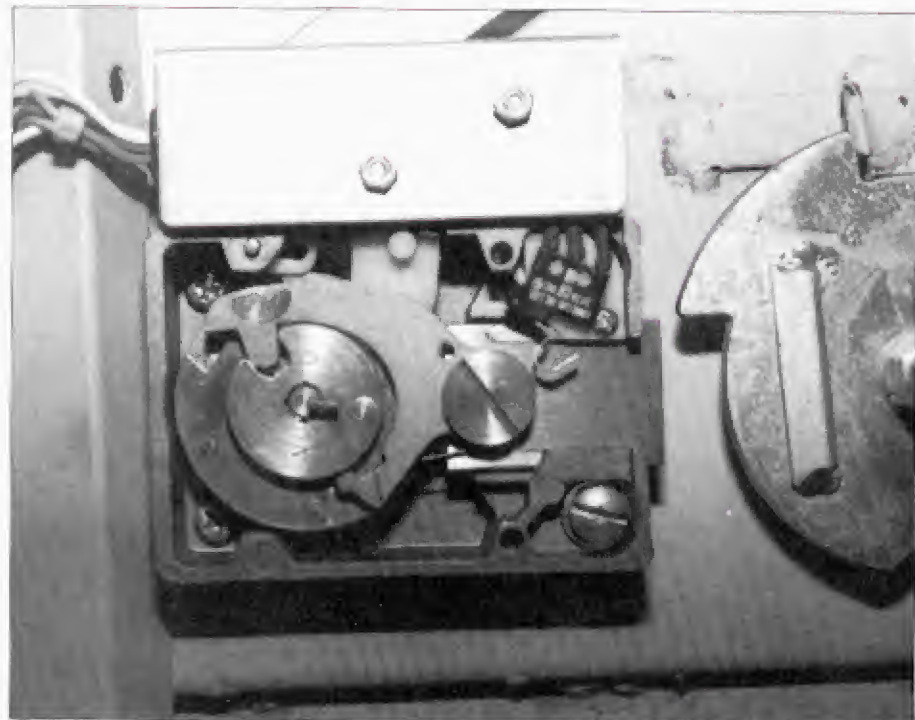
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retracted. So how could we see a wheel gate? It should be under the lever fence. The answer: there are two gates in the third wheel. Why?

In the top right corner of the lock case is a small micro switch. This switch indicates when the lock bolt is retracted and the safe is unlocked. Not seen in the photograph six is a second switch that rides the edge of the third wheel. (The one closest to the drive cam.) This switch is activated by its arm resting within the gate of the number three wheel. When the second switch is activated by the retraction of the lock bolt, a silent alarm is sent to the alarm company.

The alarm can only be sent when the "duress combination" has opened the safe. The third wheel has two wheel gates that are ten numbers apart. The running of the first two wheels and either number of the third wheel unlocks the safe. For example, the normal, daily use to open the safe is a combination of 20, 40, 60. The alarm will not be activated using these numbers. Under "duress," when someone is forced to unlock the safe, as in a robbery, the combination of 20, 40, 70 would be used to open the safe.



6. The Diebold lock controls an alarm by micro switches. A second wheel gate can be seen in the number three wheel.

The running of the third wheel ten numbers high will position the second wheel gate under the switch, activating the alarm.

I wasn't aware of this feature during my first encounter of trying to change the combination. The customer probably assumed I knew about the duress feature and didn't mention the second combination. It would have saved me a lot of time and frustration, but look how much I learned!

To set the combination, you must remember this. The combination-set to the change index (or opening index in this case) becomes the duress combination. The combination used for the daily routine opening of the safe will be ten numbers less on the third wheel.

In other words, if your customer requested a combination for daily use of 25, 90, 45, you must set the combination to 25, 90, 55.

Months later when you return to change the combination, remember to ask for the duress numbers. This is the only combination that will align the wheel change cams to the change key hole. Plus, after the change is made, have the customer call the alarm company to verify the duress combination is functioning. This will confirm the lock has been set correctly.

Going back to the beginning of this article. The safe in photograph one is the locked safe I found in that small room. The Diebold lock was mounted right hand. I pulled the dial and drilled for the fence. In photograph five you can see a ball bearing seated into the drilled hole just above the spindle hole. My drilled hole can also be seen in the lock case.

The round domed object with the electric wire coming down from it is part of the alarm system. It can activate the alarm by two methods. A vibration sensor detects any attempts to move the safe or any drill attack on the surface of the safe body. The heat from a cutting torch attack will be detected from a heat sensor within this unit and will activate the alarm.



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BUSINESS BRIEFS

News from the Locksmithing Industry

INDUSTRY INTERVIEW...

In a trade traditionally run by men, it's good to find a woman's touch. Recently, we had the opportunity to speak with Kathy Zaniolo, CPL. As sole proprietor of Personal Home Safety Company, Oak Park, Illinois, Zaniolo's determination and drive to better establish the locksmith as a professional has lead her to the presidency of the Greater Chicago Locksmith's Association (GCLA). Working with state legislators she is also a dominant player in recent proposed locksmith licensing in Illinois.

Kathy is joined by her husband Al and their teenage children, Steve, 17, and twins Debbie and Laura, 14.

Kathy, how long have you been in the locksmith and security field?

I've been locksmithing for 13 years. In 1982 I became the first employee of Personal Home Safety. With a few tools, two key machines, keyblanks and a small sign in the window, I started in the rear of an office in Forest Park.

Can you describe a little of the history on how you came into this field?

When I started, I had a five year old and two two year olds. I needed a well paying job where I could set my own schedule, and have my children nearby. Running my own business seemed to be the answer. Coming from a family of carpenters I was very familiar with locks and door hardware.

Approximately one year after opening, the store next to the office was for rent. With Al's support I rented it and opened a retail locksmith store. My first employee was a wonderful gentleman named Dave who had taken the Triton College locksmith class. He watched the store and my children while I made service calls. About six months after opening the store Al quit his job and came to work with me. Our business has grown steadily every year since.

I am very lucky to have had Bob Johnson of Lightning Lock and Roger Weitzenkamp then of Oak Lock (my competition) drop in offering help, should I need it, and friendship, if I wanted it. Support they freely gave me is what I am now trying to give other locksmiths by



**Kathy Zaniolo, CPL,
Personal Home Safety
Company**

teaching and working with the membership at GCLA.

What has been the most enjoyable aspect of working in this industry, Kathy?

Working with the people in it. My first ALOA convention in Chicago, in 1984, I spent the week taking classes and seeing the show. The locksmiths I met were the friendliest, most comfortable group of people I had ever met. I have attended every convention since and am happy to see that the old and many new faces are as friendly and sharing as ever.

With 13 years in the trade, what do you find has posed you the most challenge?

To be able to do the job as well or better than most of the men who dominated the industry. In the middle 80's I took a safe service class by HPC and LaGard. At the registration table the person doing registrations looked up and said "Hi Kathy."

I was amazed, I was new in the business, how did he know who I was. Then I looked around and of the 50 or 60 people in the room, I was the only woman. I'm glad to see there are more women in classes today. Locksmithing is a job we can do and do well.

What changes have you seen take place in your industry?

The changes are in the products we install and service. Foreign autos were not very popular when I started. My foreign auto keyblanks took up about one foot by two feet on the keyboard. Now it's five feet by four feet and needing more room. My first car opening kit held six tools and one sheet of instructions to open any car. There was also little demand for high security locks. Now we stock Medeco, Schlage Primus and ASSA.

Aside from electric strikes all our products were mechanical. What this has meant for myself, Al and our employees is a continuing need for education. We subscribe to *The National Locksmith*. We take several classes each year. My first and continuing interest in working with GCLA was to set up the classes we needed and I was sure other locksmiths needed too.

What direction do you think this industry is taking?

Our Industry is moving ahead at a very fast pace with or without us. Locksmiths need to work together making sure they keep up with the pace. We saw the

...INDUSTRY INTERVIEW

neighborhood hardware stores almost get put out of business by the huge home centers, until they joined together for education, marketing strategy, buying power and the strength of being part of the group.

The locksmiths need to use their associations to tackle the same problems and others troubling our industry, like licensing.

I think most locksmiths realize we are at a fork in the road. The road leading through Education, Business Management, Licensing, Professionalism, and Association is much harder to follow than the road marked Getting By. But the road marked Getting By will have a dead-end.

What changes do you see necessary if the locksmith is to be successful in the future?

Education, Business Management, Professionalism and working as a group to solve our problems will lead locksmiths to be successful in their businesses.

What do you feel the future holds for the locksmith and his role in security?

Locksmiths must eliminate the Lone Wolf mentality and work together. I think we are, as a whole, very intelligent and very creative. Locksmithing requires us to solve problems constantly. We can certainly solve the problems confronting us if we pool our resources and work together.

How do you think the locksmith can best serve his customer?

The best way to serve our customers is to continue our education. We must know the answers to their security problems or where we can find the answers. Also, be honest and always try your best.

Any additional comments?

My children, Steve, Debbie and Laura, have grown up in our locksmith shop. They cut keys, re-pin cylinders and, best of all, teach their mother to use the computer. I want our industry to be healthy and strong for our next generation of locksmiths.



The new owners of **Preso-Matic Keyless Locks** are proud to announce their relocation into a newly constructed manufacturing facility. The move marks a new direction for the 30 year old company which has been serving locksmith dealers and distributors.

The modern facility will enable the new owners to use their combined 40 years experience in distribution to pursue more market directions. Preso-Matic's new address is 237 Coastline Rd., Sanford, FL 32771-6659. Phone 407-324-9933, or FAX 407-328-9977

American Lock & Supply, Inc. announces the opening of its new Boston Sales Center. The opening of the Boston Sales Center will enable American to respond more efficiently and quickly to the product and information needs of customers in the New England and Upstate New York markets.

Also announced is the opening of its new East Coast Operations headquarters and distribution center in Elkridge, Maryland. The new 16,000 square foot facility will stock more than 10,000 architectural hardware, security and access control products. With the facility's central location, the company will efficiently provide same-day shipping to customers in the following six-state region: New Jersey, Delaware, Maryland, Virginia, Eastern Pennsylvania and West Virginia as well as the District of Columbia.

MIWA LOCK USA is pleased to announce the addition of **Pete Wilson** to its team. Miwa Lock manufactures and distributes both high security and specialty locks to the industry.

Pete will serve as Miwa's Director of Sales and Marketing. Some of Pete's initial tasks will be to develop the High Security Dealer Program and promote Miwa products through Locksmith Wholesale Distributors.

Pete brings twenty years of industry experience to Miwa. Prior to joining Miwa, he served as President of Abloy Security, AWI and Vingcard Systems.

Chicago Lock Company, Chicago, Illinois, today announced the appointment of **Bo Bowditch** as California Sales Representative. Bowditch has over 20 years experience in the hardware, locksmith and locking systems industries.



Bo Bowditch

builder's hardware, locksmith equipment and locking systems.

For the past 12 years, Bowditch has been with HPC, a manufacturer of locksmith supplies and key machines. Prior to that, he was with Weslock Door Lock Company, a manufacturer of

Joseph A Ghergo, Vice President-Sales and Marketing of Door Controls International, Dexter, MI has announced new representation in two areas of the USA.

The states of North and South Carolina will be represented by **Access Solutions**. William Ross and Ken Boate are the principals of the agency. Their offices are located at 8800 Peyton Randolph Drive, Charlotte, NC 28277. Phone 704-846-3670, Fax 704-846-1060

In the New England area comprised of Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, and Connecticut, representation will be by **Stoessel Sales Associates**. Steve Stoessel is the principal. He is assisted by sales associates; Christie Williams, Jeanne Cardiff and Sal Benelli. Stoessel Sales Associates is located at 474 A. Pepper St., Monroe, CT 06468. Phone 203-268-6344, Fax 203-261-7607.

Kaba High Security Locks has sold the Brassworks decorative hardware product line to the H.B. Ives Company of Wallingford, Connecticut.

Schlage Lock Company sent 4,000 residential locks for use nationwide by **Habitat for Humanity International**, an organization well known for its association with former President Jimmy Carter.

The locks, mostly interior levers from Schlage's F-Series "Flair" design, will be used in Habitat's continuing efforts of building adequate housing in partnership with families in need.



LIGHTER SIDE

It's A Jungle Out There!

"Anything besides deadbolts and key blanks that need to be ordered, today?" Dave asked as Don came into the store from running a service call.

"You might see if you can get me one of those elephant trunk keys," Don replied gruffly. "The way things have been going, I'm sure to need one before the weekend." Without further comment, he stalked into his office and closed the door.

"Elephant trunk key?" Dave whispered in my direction. "What in the world is an elephant trunk key?"

"Don't pay any attention to him," I replied. "That's like a left-handed wrench or a sky hook. He's just pulling your leg. Obviously, he's had problems getting somebody's trunk open."

"Several somebody's trunks," Don called through the door.

It was way past lunch time before we heard the whole story.

First thing, that morning, Don had been called "up river" to help a stranded tourist who could not get the trunk open on her '89 Dodge. She had the key, and there was an inside release, but the trunk would not respond to either.

"Is the vehicle yours, as opposed to a rental car or one you've borrowed from someone?" Don asked over the phone before he started up that way.

"Yes, it's mine," the woman replied.

"Have you had previous difficulties with the trunk lock?"

"Never. I simply can't imagine what the problem is."

When Don arrived at the site of the vehicle, he learned that the woman had never before tried to open the trunk using her key. She had always depended upon the mechanical trunk



by
Sara Probasco

release, instead. However, the key would open the glove box, and having bought the car new, she claimed the trunk lock had never been replaced, so the key didn't seem to be the problem.

Don tried everything he knew. He played with the release, he tried working the key in the lock, he even tried picking the lock open. Nothing worked. Finally, he informed the lady he would probably have to drill it. She looked so unhappy about that prospect, he decided to try one other thing, first.

Assuming his diagnostic pose, Don said, "Hmmm. You know, it's just possible there's something inside the trunk that's interfering with the latch mechanism. Let's try something."

At Don's instructions, another woman in the party got inside the car to operate the mechanical release. The owner positioned herself at the trunk lock, key inserted, ready to try that. Don climbed onto the trunk hood and sat down.

"Go!" Don shouted. While he bounced vigorously up and down on the trunk, the two ladies worked the release and jiggled the key, all at once.

Finally the lady at the release called out, "It's moving!"

Don gave one more mighty bounce.

"Whoopie! It's open! It's open! It's open!" The owner shouted with glee.

Once they could see inside, it was clear that a thin foam float-mattress was the culprit. A corner of it had been mashed in the latch, preventing it from opening as it should.

Despite the fact they could see the cause, the women insisted on transferring everything from the trunk into the back seat, before they would allow Don to close the trunk again.

But it was the second trunk episode that day that really had Don piqued.

I took the call. The lady asked for

"the man who owns the business," announced her name (which I had never heard before), and paused, as if waiting for my response. Well, dear reader, if you've followed my articles for long, you know my interpretation of those who want to speak to "the owner." More often than not, I have found the caller is either trying to sell you something or is threatening a law suit.

However, this caller was the exception (a good lesson, here: never assume anything. We all know where that gets us!). She finally got around to saying she had locked both sets of keys in her car and needed a locksmith. Directions to her house included the fact that she lived on an alley, and that houses on her alley were not numbered.

"But," she added, "I live directly behind José Menchaca."

"What is his address?" I naively asked.

"I don't know the house number, but he's on Pearsal road. You know José, don't you?"

I didn't. What's more, Pearsal Road goes all the way to — you guessed it — Pearsal (roughly, fifty miles from Uvalde!).

"I'm going to need better directions than that, I'm afraid."

"Well, if you just get on the alley and start going, you're bound to find us. My car is in the driveway, and Bob's truck is there. Besides, we've got an old out-house sitting out in the front yard, under a tree."

Don found it. But when he did, his troubles had just begun. The keys were not inside the car, so, deciding to check the trunk, Don reached for the electric release. It refused to work. Even his little lamp cord "booster cables" wouldn't activate it. Progressioning a key proved difficult — no surprise, at this point. When they finally got the trunk open and no keys

Continued on page 102

THRU THE KEYHOLE



A Peek at Movers & Shakers in the Industry

**ATTENTION MANUFACTURERS
AND DISTRIBUTORS:** Would you like
your company and products to be
profiled in *Thru The Keyhole*? Please call
Managing Editor, Tom Seroogy at
(708) 837-2044.

What's New With The Aanon Safe

The Aanon Safe was designed by Brian Hambleton and has been manufactured by his company since 1979. The safes were marketed solely in Colorado until Clark Security Products expanded the Aanon safe market into Arizona, New Mexico, Wyoming and then into California.

Hambleton, whose corporate background includes engineering management, has been responsible for many new industry standards. Some of his innovations include the large door depository safe (the DualVault line), the ATM-type drawer depository, the Safetron electronic (digital) lock for burglary safes, safe doors that can be interchanged without tools and parts that are fit, form and functional interchangeable within the door.

Through word of mouth, the company expanded its Aanon line and distributor base nationally and in 1985 began exporting to Taiwan. (Further expansion is planned into the Pacific Rim.) From Hambleton's garage, the company moved into a one-bay shop, then into 15,000 square feet in Boulder, Colorado and then, in December 1993, into a 30,000 square foot building in Esmond, North Dakota.

The Eagle Safe Company was acquired in 1989 allowing the company to produce its own TL-15 and TL-30 UL-rated safes. The safe's consistency of quality, coupled with undeniable superior design, simplicity and security features put the Aanon Safe into an expansion mode.

The company reorganized in 1991 and Aanon Corporation became Safe Corporation International (SCI).

SCI manufactures the Aanon burglary safes (with combination or dual key locks) and the "Safetron" safe (with the electronic lock). The Safetron lock is being manufactured 100 percent in the new facility. This new generation lock has a built-in time delay and a six digit combination which is programmed from the front, replacing the original thumbwheel. A flashing green and red light gives opening, time delay, wrong number and combination acceptance signals. A buzzer sounds at the end of the time delay sequence.

For more information, brochures and price lists, please call the factory at 701-249-3494 or write to: SCI, P. O. Box 218, Esmond, ND 58332.

Lockmasters® Education Programs

In order to keep up with the continually changing security industry, Lockmasters, Inc. has enhanced their education programs and added to their course curriculum to better serve you. They have made the correspondence courses more efficient for those students who need training, but can't get away. They have also added one new resident course and two new specialty courses to train and inform locksmiths of the changes that are taking place in the industry. One of these new courses is Electronic Access Control. The industry is moving into the electronic field and this new course will introduce students to the latest in electronics.

Lockmasters® also announces the addition of two new instructors, Charles C. Robertson and Brian Lamb. A graduate of Lockmasters, Robertson is a 27 year veteran of the locksmithing industry. In the past, he served in various positions in local

locksmith associations, including serving as Director of Education for the Northwest Locksmith Association. Chuck has also developed and presented courses for both local and national associations. Brian Lamb was previously the product manager of the locks and parts division of Lockmasters' sales department. During the past three years, Brian has been teaching numerous Lockmasters seminars around the country.

"These appointments show our strong commitment to education in the locksmithing industry," said J. Clayton Miller, President of Lockmasters Professional School. "Today's security technicians need an education that gives them a leading edge, and we believe our improved correspondence structure and the new additions to our resident courses will help them achieve that edge."

Correspondence courses that are available through Lockmasters include: Safe Lock Servicing, developed for anyone wanting to start a career in the safe and vault industry; Safe Deposit Lock Servicing, developed for locksmiths seeking a highly profitable business or wanting to expand their current business; and Combination Lock Manipulation, developed for advanced technicians who want to understand the more complex, in-depth workings of combination locks and be capable of determining the combination without drilling.

Are you worried about getting the support you need through a correspondence course? No need, because if you have any questions, you will receive expert advice over the telephone from either Chuck or Brian, according to the school. This is the method of individualized instruction you need to work in your home or business, at your own pace. You will not be disappointed. However, if you prefer a classroom environment, you might want to consider the resident

programs.

Lockmasters' resident training programs offer extensive hands-on instruction and the personalized attention essential for the development of competent and self-assured technicians. The (1994) resident courses that are available include Safe Deposit Box Servicing, Safe Lock Servicing, Combination Lock Manipulation, Safe Penetration, Government Security Container Training, and Professional Locksmithing. These courses will also be available in 1995, but some changes and additions have been made to update you with changes in the industry.

Because electronic safe locks are becoming the standard for the safe security market, Lockmasters is adding a new Electronic Access Control course to the regular resident schedule. If you are not familiar with electronics, you may be interested in a new specialty course now being offered: Introduction to Electronic Safe Locks. This course provides you with an overview of the operation and features of a effectively service these new products.

The last few years have brought many changes in GSA approved security containers and locks. They are making these changes available to you by adding a Government Security Container Training Update Course. This course was designed as a refresher for previous students of our GSA course to make them aware of the latest changes in government specifications.

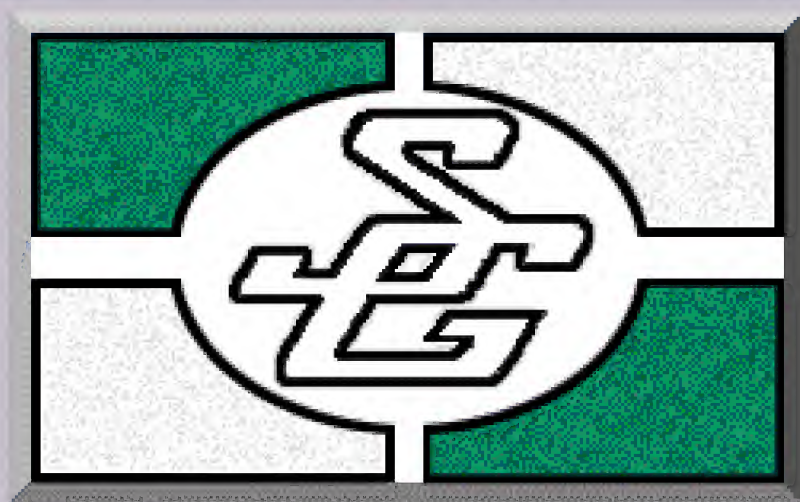
Expand your business and increase your profits by taking advantage of our enhanced curriculum and our new courses. For those students who have already taken a Lockmasters course, we are offering a special which allows you to take the same course a second time at half price. Please call Eyleen Adams at 800-654-0637 for detailed course brochure and a 1995 course schedule.

Gardall's Six Pack Rack

Success in selling safes is something many locksmiths try to achieve. Some locksmiths achieve that success more quickly than others. The key to their success is promotion of the product coupled with a high degree of customer service.

To bring that success into your own business you should first ask yourself, "How do I start to promote safes of my sales will increase?" The name of the game is customer awareness through promotion. Gardall Safe Corporation offers safe dealers the Six Pack Rack as a self-contained retail safe display. This display is convenient to the locksmith because it requires little floor space while giving optimum promotion for his safe line. The rack is organized in such a way as to show a good cross section of safes which the locksmith can describe to the consumer. Customers find it convenient because they can compare each safe up close. Many of them have never seen a premium safe before and they will appreciate the Gardall Six Pack Rack.

Store merchandising begins with a safe display that is organized and well maintained. Gardall has developed its Six Pack Rack to assist the locksmith with the promotion of its products. It contains six of Gardall's best selling models securely mounted on a display rack. The rack allows safe dealers to display these popular models in a way which facilitates viewing by, and demonstration to, customers while



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Gardall's Six Pack Rack

requiring a minimum of floor space.

Further, the rack also features a promotional poster and a point-of-purchase literature display to hold retail brochures. The six safe models on the rack include two of Gardall's UL-tested, 1 hour, 350-degree fire safes which are housed on the bottom shelf of the rack. These include models 1310 in either gray or tan and an 1812 featuring a touch pad electronic lock. The top shelf consists of an RC1218 and a TC1206K which represents the depository safes and an H2 unit which serves as a compact utility safe. The last safe on the top shelf is the SL6000/F wall safe with flange on the outer rim of the safe offering an easier installation for the consumer.

Once the Six Pack Rack is placed in your store the next crucial element in safe sales is outside advertising to bring the customer into your store. Gardall offers the locksmith a variety of ways to conduct an outside advertising program. Both mailers and ad slicks are available to the dealer at no cost and are an effective way of

promoting your store to the consumer. Once customers come through the door, store layout and customer service may be crucial to making the sale.

As a customer walks into your store, the first factor that will always grab their attention is the set-up of the store. It is critical that displays are clean and easily accessible. Make sure that your safes are free of dust and are organized to be demonstrated properly. Dusty/dirty safes indicates a slow moving product which turns the customer off from purchasing, or even staying! If they have to struggle to get through the store to look at the safes or come away

dirty from the experience, let's face it, they probably won't come back.

Don't be afraid to talk with the customer once he is in your store. Make the customer feel that you are willing to spend time with him to find the right safe to meet his needs. More often this will impress the customer and odds are that even if your prices are a bit higher than the other guy they will come back to you due to the outstanding service you have given them.

As you talk with him, try to determine your customers reaction to the product by asking his opinion of the features. It gives you a chance to deal with possible objections proactively. The advantage of keeping a dialog with your prospect is that it increases his commitment in the purchasing process. After you have clarified any objections he may have, try the following strategies for closing the sale.

a) Provide your prospect with more information to convince him that the product is a good match for his needs.

b) Review the buyer's needs and buying criteria. Ask your customer what is most important to him.

c) Overshadow his dislikes with features he does like to illustrate the small trade-off necessary to get the features he wants.

d) The subtraction method: if price is a major concern, show him a cheaper model with fewer features.

e) Miniaturize price: this safe will provide you with hold-up protection for only 10 cents a day.

Using a promotional display like the Gardall Six Pack Rack to show the features and benefits of safes, your customer will begin to see that you are working with his best interest in mind. Promotion of the product and a high degree of customer service are the strong points of making the sale. A good guide to remember is a satisfied customer will tell his or her friends and that will help your business grow.

For more information on the Six Pack Rack contact your local safe distributor or call Gardall at 800-722-7233.



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The National Locksmith

A Supplement to

**DHI
'94**

October 1994

**Miami
Beach**

The National Locksmith



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WELCOME TO THE SHOW!

Welcome to the 19th Annual Convention and Trade show of the Door and Hardware Institute. This show guide is the seventh annual production of *The National Locksmith* designed to bring you news of this important event in the world of architectural and builders' hardware. If you are interested in the latest products and advancements made by companies active in the hardware field, the Door and Hardware Convention is the place to be!

Host for this year's show is Miami Beach. The convention trade show will take place from Sunday, October 16 through Tuesday, October 18. The exhibit hall in the Miami Beach Convention Center, 1901 Convention Center Drive, will be open from 11 a.m. to 4 p.m. on Sunday and Monday and from 11 a.m. to 3 p.m. on Tuesday.

The Door and Hardware Institute is the professional association whose members distribute, manufacture and specify doors and hardware for commercial construction. For more information on the association or this year's convention, contact: DHI, 14170 Newbrook Drive, Chantilly, VA 22021-

2223, (703) 222-2010, Fax (703) 222-2410.

In this show guide you will find a booth map and booth listings for the convention. Also included on the following pages is our Product Showcase. In this section, we present a wide range of product either being exhibited at the show or of interest to the people attending the show. At the bottom of each advertisement and product showcase item in this publication you will find the line: "For FREE Information Circle ___ on Rapid Reply." Simply circle the number on the return card that corresponds to the number at the bottom of the ad or product showcase item about which you wish to receive more information. Place the proper postage on the card, return it through the mail and a few short weeks later you will receive the information requested from the individual companies.

The National Locksmith is the leading publication serving the locksmithing and physical security industry. For subscription or advertising information contact: *The National Locksmith*, 1533 Burgundy Parkway, Streamwood, IL 60107, (708) 837-2044, Fax (708) 837-1210.

ON THE COVER

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BEYOND THE LOCK

Like other dimensions of security and hardware (alarms, access control, fencing, etc.) a door is actually a system made up of many components.

by Tom Seroogy

Every time a locksmith approaches a door there is opportunity for income, provided he sees more than just keys and locks.

Like other dimensions of security and hardware (alarms, access control, fencing, etc.) a door is actually a system made up of many components: Door and frame, locking/latching devices, closers, sealing and weatherstripping and hinges.

The most obvious of these parts is the door and frame. Making a thorough inspection of them should be the starting point for doing any hardware or door work. A door or frame in poor shape may require repair or replacement before any additional work or additional hardware can be added to the door/frame.

In checking the door, on metal doors look for rusted or split seams, on wood doors look for lifted

laminates or loose rails. Use a straight edge to check for being out of square or any bowing.

On metal doors, check to make sure the "skin" is still secure and hasn't broken or rusted loose from the supports and framing. A gentle thump on the face of the door at various positions is a good indicator of the skin's condition.

Another way to checking how solid a steel door is can be done by grabbing an upper corner and placing a foot at the bottom or a hip or knee at the center of the door. Then try to twist or contort the door. There should be very little give.

Check the frame for being square,



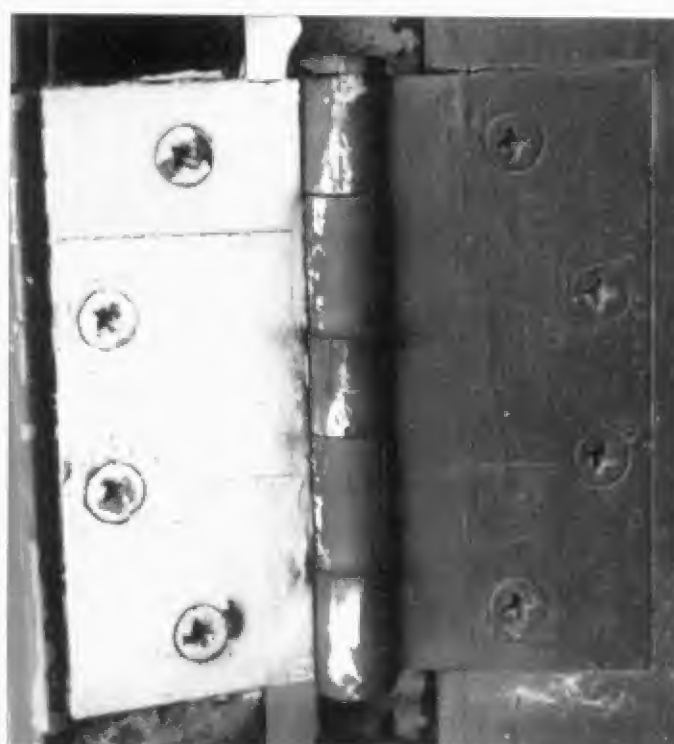
1. When closed, the bottom of the door hits the door stop edge but the rest does not. This is a result of the jamb not lying in the same plane as the door.

jamb's plumb and in plane with the door. (See illustration 1.) Steel frames, especially exterior, have a tendency to rust at the bottoms, not allowing the door to sit flatly against the door stop edge. Advanced rusting may require that the frame be replaced. (See illustration 2.)

Check for bent and/or broken hinge plates. Cases where they are rusted or broken loose from the frame



2. This jamb is showing a severe case of rust. Light tapping with a screw driver poked holes throughout the bottom. This frame should be replaced.



3. This hinge shows signs of excessive wear and should be replaced. Not visible is a missing hinge pin set screw.



4. This weatherstrip is bent and torn. Replacing it means more money in the wallet.



5. This sweep is missing the rubber seal and needs replacement.



6. Freezing weather and ground have loosened the fasteners for this threshold. Constant traffic has worn it out.

or door will usually require the attachment of a surface mounted hinge. Before doing so, however, make sure that both the frame and door are capable of accepting them.

While the hinges are typically categorized with the rest of the door hardware, they are, in themselves, a separate and critical component of the door system.

Common problems with hinges include loose screws, worn and rusted hinge pins, bent leaf, misalignment (with other hinges), and hinge bind. Most of these problems can be taken care of without replacing the hinge.

When one (or more) does need to be replaced, however, not only do hinge dimensions need to be correct, the type and weight of the hinge is also critical. Exterior doors must have non-removable hinge pins. For most commercial applications, while a standard hinge is commonly used, a ball bearing hinge will provide longer, smoother operation for the door. On exceedingly heavy doors, the ball bearing hinge is critical. When replacing hinges (as with all hardware), replace only with equipment whose specifications are the same or better than. (See illustration 3.)

Next consider the sealing and weatherstripping applied to the door. What kind of shape is it in? Is it adjusted properly?

Weatherstrip should meet evenly around the entire surface of the door without interfering with the door's ability to latch. (See illustration 4.)

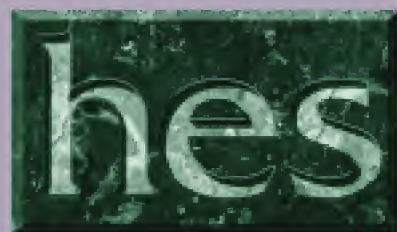
Door sweeps should allow the door to swing freely to its full open position and fit snugly against the threshold. Sweeps come in various forms; from the standard metal and rubber strip, to the more versatile adjustables, to the more specialized fire/smoke sealing units. (See illustration 5.)

While checking the sweep, take a good close look at the threshold. Make sure that it is securely fastened. Make sure that all screws are snug. If it is adjustable, make any necessary adjustments. If it needs replacing, replace it. (See photograph 6.)

With the door swinging freely and seating properly when closed, we can now look at the door closer and ancillary equipment. Check the door's back check, closing speed and latch speed. When the door is fully closed, the closer should hold the door flat against the door stop edge. Make sure that opening and holding pressures meet ADA requirements. Make sure all mounting hardware is snug. (See photograph 7.)

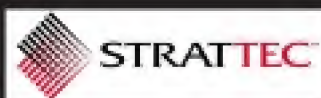
With the closer adjusted, open the door and check for swing. If the door swings beyond the capacity of the closer, install a door chain or door stop. (See photograph 8.)

Only once you are satisfied with the way the door opens and closes should you check the hardware. When a door is installed and operates properly, the latching and locking hardware aligns with the coordinating strikes; latching occurs without the need to slam the door; and the door opens without problems from a binding latch. (See photograph 9.)



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7. The parallel arm plate is loose and missing screws. Reinstall this unit for proper closer operation.



8. This door opens far beyond the closers capacity. A good door chain will help extend the life of the closer, protecting it from the wind and wild employees.



9. This lock aligns and works well once all other door problems have been taken care of.



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PRODUCT SHOWCASE

Von Duprin's Surface-Mount Shear Lock

Von Duprin, Inc. has introduced a new surface-mount shear lock that provides 1800 pounds of holding force for in-swinging or out-swinging doors. The new SL4200 series surface-mount shear lock is the latest addition to the company's Maxhold® family of electromagnetic locks and incorporates the same technology used in the 4100 series concealed-mount shear lock.



The SL4200 series accommodates door clearances up to 1/4", which eliminates the need for constant readjustment. A dual-voltage coil permits field selection of 12 or 24 VDC operation. Other features include a built-in voltage surge protection, a plated armature and electromagnet assembly for maximum corrosion resistance, and a mounting plate and armature design that helps assure error-free installation.

For **FREE** Information
Circle 236 on Rapid Reply

Securitron's New TSB-3 Touch Sense Bar

Securitron announces its all new TSB-3 Touch Sense Bar. The Touch Sense Bar is used in concert with magnetic locks on non fire-rated doors to provide code approved free or delayed egress. The Touch Bar does not rely on moving parts but



employs a patented internal sensor which reads touch, even through gloves and clothing. Activation is immediate with no pressure required.

At unchanged pricing, the TSB-3 provides many improvements over Securitron's model TSB-1. The bar and its mounting have been strengthened to improve vandal resistance. Installation time has been reduced and field cutting to match non-standard door widths has been greatly simplified. The unit now adds a double pole output so that it can simultaneously release the magnetic lock and send a request to exit signal to an access control system.

For **FREE** Information
Circle 237 on Rapid Reply

NT Falcon's T Series Cylindrical Lockset

NT Falcon Lock, a Newman Tonks company, has introduced a heavy duty lockset that can withstand pressure well above industry standards.

The Grade 1 T Series cylindrical lockset with patented Pressure Release lever is one of the most



durable locksets now available. When locked, the lever disengages from the internal locking mechanism and moves freely to a downward position. When pressure is released, the lever returns to its original horizontal position automatically with no resetting required.

The American-made NT Falcon lockset has an unprecedented 24 functions for a variety of applications including schools, hospitals, office

building and more.

For **FREE** Information
Circle 238 on Rapid Reply

National Cabinet Lock's Flexafunction Cam Locks

National Cabinet Lock offers the new Flexafunction™ line of locks that can be set up with either a 90° or 180° cam turn. This enables one lock to be applied in a wider range of door or drawer applications. As a result, inventory requirements can be reduced.

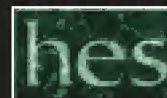


Flexafunction disc tumbler cylinder cam locks can be used on drawers or both left- and right-hand doors. They can be used with lipped/overlay construction (straight cam) or flush construction (formed cam). Keys are removable in both locked and unlocked positions. Flexafunction locks will key together with all other disc tumbler locks.

For **FREE** Information
Circle 239 on Rapid Reply

Zero's New Liquid Intumescent Material

In its latest innovation in fire and smoke control for the door and door hardware industry, Zero International has revolutionized intumescent technology with the development of a pourable product that can be used to fill any cavity or channel for fire-rated door construction. Manufactured in liquid form and factory-injected into aluminum extrusions and other shapes of almost any material, Zero's FS6886 intumescent material hardens to a



cement-like consistency. When exposed to heat or fire, the new product matches the superior performance of Zero's original rubber-based FS3003 intumescent material for protecting door openings from penetration by flames, heat and smoke.

For **FREE** Information
Circle 240 on Rapid Reply

Valli & Valli's Next Generation Lever Sets

The American division of Italian manufacturer Valli & Valli is pleased to announce the introduction of their Giara Series H180 lever sets. A classic example of form following function, the lever's sleek appearance is attributable to the use of high quality Murano glass combined with contoured polished brass, creating a sophisticated, elegant look designed to compliment an array of interior designs.

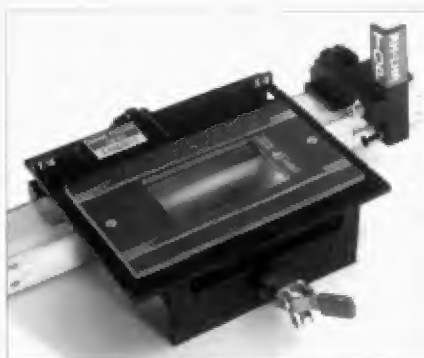


The elegantly styled lever sets feature high quality Murano glass from Venice, Italy, and are available in pink, aqua and clear glass. Each Giara Series lever set includes complimentary protective door stoppers and are available with matching coat hooks, which also feature Murano glass and attractive brass trim.

For **FREE** Information
Circle 241 on Rapid Reply

New DoorTech Face Template System

Norfield Tools and Supplies introduces the new DoorTech Face Template System that makes it easy to machine doors for panic hardware,



Ving Card security hardware, lock bores, unlocks, hospital latches, and flush pulls on sliding doors.

This easy-to-use system consists of durable, interchangeable templates that snap into an adjustable base unit. With a backset ranging from 0" to 7" and a built-in ruler, the base unit handles adjustments easily. To install, simply twist two knobs, and the unit is secured to doors with square or beveled edges. All that's needed is a plunge router with a 13/16" O.D. guide bushing and a 1/2" x 4-1/2" twin flute carbide bit. The base unit is designed for 1-3/4" doors. Shims can be added for use on thinner doors, and longer 1/4" bolts can be added to accommodate thicker doors.

For **FREE** Information
Circle 242 on Rapid Reply

Italbrass Corporation

Italbrass offers an extensive line of classic and contemporary designs of door hardware, cabinet pulls, and accessories, all hand-crafted in solid brass by artisans and created by top Italian designers of international reputation.

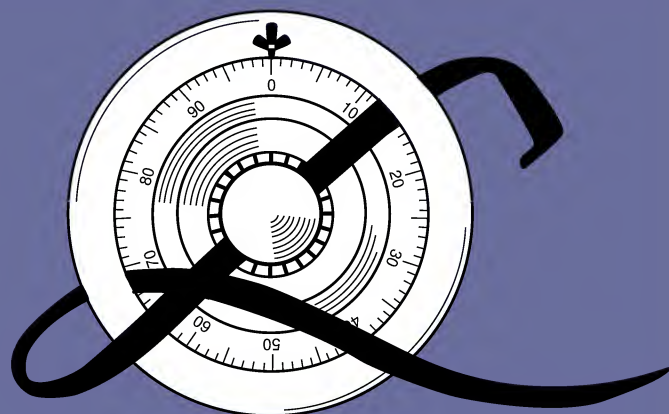
A few years ago Italbrass was the first company in the world to introduce guaranteed finishes on solid brass door hardware. Only Inoxbrass, the brass vacuum treated with zirconium and palladium wears against atmospheric agents, friction, and hard usage maintaining all of its splendor. Now brass can be used for any application and in heavy traffic areas. This exclusive finish is guaranteed not to tarnish for 15 years.

For **FREE** Information
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New Kwikset One Sided Deadbolts

Kwikset Corporation is expanding its line of 660 series one-sided deadbolts.

Kwikset has created three new products to provide additional

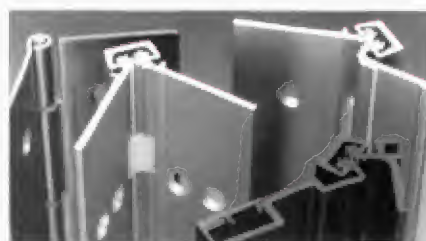


Lockmasters has a 44 year history of training security professionals.

[Click here for more information](#)

convenience for apartment and hotel owners. At the center of the new technology products is a one-sided deadbolt with an exterior plate (667). This product allows easy replacement of two-sided deadbolts by covering the door lock's former exterior hole with a secure exterior plate. The "retro-fit" kit (664) allows the installation of the 666 model in the doors that have been drilled all the way through. A UL version provides full compliance with local fire codes.

For **FREE** Information
Circle 244 on Rapid Reply



Door Hinge Catalog From Zero

Zero International's four-page catalog provides detailed specification guidance for the company's full line of heavy-duty, high-performance door hinge systems. The acclaimed

UNIGEAR Continuous Door Hinge System is featured along with an array of pragmatic and aesthetic options that further enhance its versatility. In addition, the catalog highlights the new UNIPIN Continuous Hinge System, especially suitable for high-traffic applications, as well as Zero's cam lift hinges for use with sound-rated doors. For each system and option illustrated in the catalog, schematics to scale are supplied to accommodate use by specifiers in drawing plans.

For **FREE** Information
Circle 245 on Rapid Reply

Corbin Russwin Mortise Locksets

Corbin Russwin's premier offering of mechanical and electromechanical mortise locksets exceeds ANSI Grade 1 requirements for both regular and high security applications, making the ML2200 Series ideally suited for new or retrofit office buildings, educational, health care, and detention facilities. Corbin Russwin mortise locksets are available in a wide range of architectural finishes and designs to complement any project design, as well as meet security, durability and code requirements. The ML2200 Series offers eight lever styles, including the new Princeton, for flexibility and a wide selection fully compliant with ANSI A117.1 Accessibility for the Physically Handicapped.



Rugged 1" stainless steel deadbolt, 3/4" latch bolt and armored front are just a few standard features. The lock case and internal mechanisms are made of heavy gauge steel with corrosion resistance protection provided on the case.

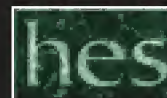
Also available is the high security version, the ML2200HS Series, for high traffic buildings requiring a

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greater degree of security than traditional mortise locksets provide. Security is maintained with cast trim that is through bolted with Torx head screws and Corbin Russwin's pick and drill resistant high security cylinder.

For **FREE** Information
Circle 246 on Rapid Reply

Trine's New Adjustable Strikes

Trine's new 2000 Series of six non-handed adjustable strikes feature a 1/8" horizontal adjustment which compensates for door and/or jamb misalignment and allows for faster, easier installations. Three of the strikes contain an easily removable, angular latch "guard" that protects the



mechanism from the intrusion of foreign objects.

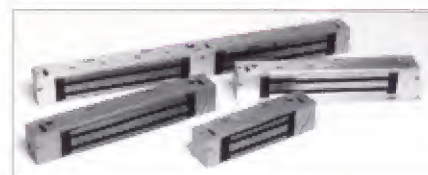
Other features include: solid cast latches, 900 pounds holding force, durability tested for 500,000 cycles and low current draw. All the strikes in the 2000 Series are available in the following voltages: 6 to 14 AC/DC, 16 to 24 AC/DC, 12DC or 24DC.

The six adjustable strikes are designed to meet specific applications and are available in chrome, brass, satin zinc and dark bronze finishes.

For **FREE** Information
Circle 247 on Rapid Reply

Narrow Style Electromagnetic Locking Devices From Delta Controls

Delta Controls has introduced a complete new line of surface mounted electromagnetic locking devices. The narrow style architecturally-oriented 800 series is being offered in two sizes providing a minimum of 500 and 1,000 pounds of holding power per door leaf. Models are available for single and pairs of out swinging, in swinging, sliding, and roll-up doors. Filler plates, angle brackets and other



mounting adapters have been specifically engineered to satisfy a wide range of door and frame types and conditions.

Factory-furnished options include: a semi-concealed SPDT door position switch; one or two colored indicator LEDs; two-point magnetic bond sensing; adjustable automatic delayed relocking; a door release sounder; and tamper-resistant cover screws. The 800 Series electromagnetic locks feature: large, accessible wiring chambers; rigid four-point adjustable mounting; low current draw in a choice of five operating voltages; extra-long housing covers; a spike suppresser; and exclusive armature mounting.

Locking devices are also available with a one-piece high-security housing cover with tamper guard which shields the shear line between armature and magnet and provides added protection against tampering.



National Auto Lock Service, Inc. offers a wide range of equipment and services for the Automotive Locksmith. From tools and hard to find key blanks to transponder programming, we can take the mystery out of car service. We accept credit card orders, and can ship COD. Contact us for the latest in automotive technology.

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All 800 Series units are available in a wide choice of anodized, sprayed, and plated finishes for architectural enhancement. They are furnished with all necessary mounting hardware, templates, and mounting and hookup information.

For **FREE** Information
Circle 248 on Rapid Reply

Literature Available On Von Duprin Two-Point Latch Assembly

A new single-sheet flyer describing a recently-introduced Two-Point Latch Assembly is now available from Von Duprin. It describes and illustrates the firm's Series 237 Two-Point Latch assemblies for use on standard hollow metal on fire doors. Available on a



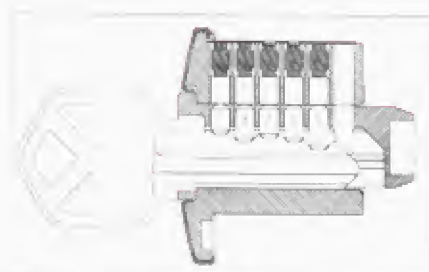
special order basis, the new 237 two-point vertical latch combines the firm's 8847-F Vertical Rod and Latch Assembly with a soffit latch and ratchet release. A 371L-BE control lever and mounting plate are standard on the push side, with a second control lever available for the pull side. Lever operation meets all ADA requirements.

For **FREE** Information
Circle 249 on Rapid Reply

Kwikset Increases Titan Versatility

Kwikset Corporation, America's largest producer of residential locksets, is introducing a new standard cylinder plug for all keyed TITAN locksets.

The new TITAN plug provides compatibility between the high security TITAN line and Kwikset



products. Retailers and locksmiths will now be able to pin plugs to work with either 6-pin TITAN keys or 5-pin Kwikset keys. This new keying compatibility allows retailers and locksmiths the opportunity to sell current Kwikset customers the advantages of upgrading the higher security TITAN lockset without the expense of replacing all other exterior locks or cutting new TITAN keys. This will enable customers to retain their existing Kwikset key when making the upgrade to TITAN products.

The new standard cylinder plug will be shipped beginning this summer in all TITAN products.

For **FREE** Information
Circle 250 on Rapid Reply

American Device Electromagnetic Locking Devices

U.L.-listed electromagnetic locks with holding forces of 300 and 600 pounds are now available from American Device Manufacturing Co. The 300- and 600- pound locks are intended for medium security applications where size limitation is a significant factor. They fill out the American Device lock line, which also features a comprehensive range of 1,200 pound higher security magnetic locks.



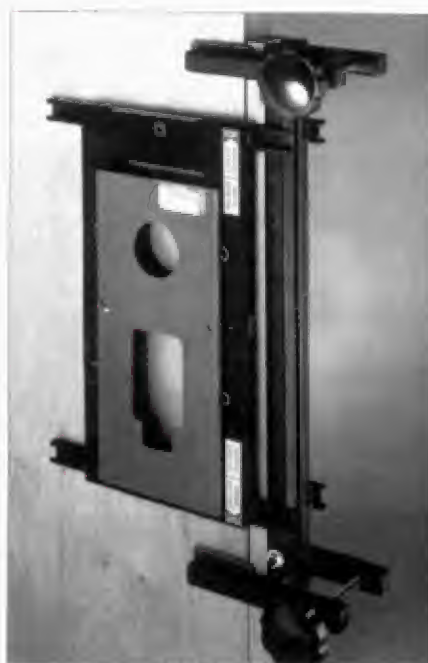
The electromagnetic locks are fail-safe and will release in the events of a power failure or signal from an appropriate door control unit. They complement American Device's 4000 and 6000 Series mechanical exit devices for emergency egress.

Each magnet comes complete with a door position switch. Additional options are available, including magnetic bond sensors, power LED and a built-in-delay feature.

For **FREE** Information
Circle 251 on Rapid Reply

Doortech Hinge System 3000

Norfield Tools and Supplies is the exclusive distributor of the new DoorTech Hinge System 3000 that provides fast and effective hinge prep without the expense of an automated machine.



The Hinge System 3000 consists of four template holders, five backset shim sets, and three sets of depth-controlled templates that eliminate required router adjustments. The system's templates and backset shims assist with quick and accurate settings for hinge sizes, backsets, and cutting depth. This saves time and money by helping to reduce labor and raw materials costs.

The System fits doors up to 2-1/4" thick that are bevel or square edged and measure up to nine feet in length. The strong, lightweight unit easily attaches to the door without marring it.

Required accessories include a Porter Cable Model 690 or similar router with a 1/2" collet, 13/16" O.D. Template Guide Bushing and a 1/2" x 2-3/4" carbide router bit.

For **FREE** Information
Circle 252 on Rapid Reply





UNDER CONTROL MECHANICAL ACCESS CONTROL

The Keylex 2000 series lever is functional, durable and ADA compliant.

New for mechanically operated access control, the Keylex 2000 series lever set is ideal for light and heavy duty commercial/institutional applications. Introduced by Door Systems, Inc., the Keylex lever is a mechanical push button lever lock incorporating a Grade 1, 2-3/8" or 2-3/4" deadlatch, exterior slip-clutch spindle operation, and field reversible levers.

There are several features that make this unit appealing to the end user as well as the locksmith:

For the end user, the unit is simple to use. The buttons for the pre-selected combination can be entered independently and in any order.

For example, if the combination includes the buttons 1 - 2 - 3 - 4, these buttons can be hit in any order to operate the lock. If desired they can be hit in any combination as well.

16,384 different combinations are available.

The body of the unit is made of diecast brass and the buttons are made of stainless steel, offering a weather and corrosive resistant unit. Available in an antique brass or satin chrome finish, the all metal construction creates an attractive and durable unit capable of high traffic areas.

The unit includes a two year limited warranty.

During those times when the door needs to be left unlocked, the unit is easily changed to a passage function using an inside thumbturn after the correct combination has been entered.

The lever design of this unit allows for ADA compliance for those doors requiring it. This makes the unit easily retrofitable for almost any application.

For security, the outside spindle employs a slip clutch. If the outside knob or lever is force turned, it breaks free, avoiding consequential damage to the internal components. To reset the clutch mechanism, simply turn the spindle in the opposite direction until the handle re-engages.



The stainless steel buttons also enhance the security by protecting from obvious wear patterns caused by continual use.

There are two model levers available - the #22123 without a bypass key, and the #22123M with the bypass key. The bypass lock allows access from the outside using a high security Medeco cylinder mounted at the bottom of the lock. In applications where more than one unit is installed, each bypass lock can be keyed singly or masterkeyed to fit the customer's need.

For the locksmith, the Keylex 2000 lever is easily installed, requires little maintenance, has field reversible levers and the combination is easily and quickly changed. Where necessary, an adapter plate is available to retrofit a Simplex 1000 door prep.

For more information contact Door Systems, Inc. at 215-672-8087.



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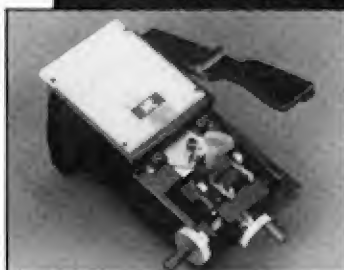
Silca's Bravo USA



FIRST PRIZE

Locksmith designed, the Silca Bravo USA is a quality semi-automatic duplicator. Four-way jaws hold even the smallest keys as this. One of the most accurate key machines on the market.

HPC's Punch Machine™



SECOND PRIZE

The Punch Machine™ (1200PCH) is HPC's newest addition to the 1200 series key machines. It works on the same principle as the 1200CM, making it quite versatile. It is also very accurate and completely portable.

Belsaw 200



THIRD PRIZE

Duplicate, cut by code, cut flat steel keys. Complete machine with motor, three cutters, guides, and instructions. Built in micrometer.

HPC 9120



FOURTH PRIZE

HPC's most compact key cutting machine features reversible jaws. Double-sided copy dog cuts flat steel and safety deposit keys and has softy brush. Excellent versatile machine.

Accumark Key & Lock Stamp



FIFTH PRIZE

For the easiest and straightest way to coin. The Accumark stamp holder provides accurate stamping of keys and mortise lock faces. Includes holder, mortise cylinder attachment and a custom stamp.

\$100 Cash & Flat Rate Manual



SIXTH PRIZE

\$100 in cash will brighten your day! So will the *Flat Rate Manual for Locksmiths*. The manual will help you price your services for profits. You won't ever have to guess how to price again.

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SEVENTH PRIZE

These three books contain 450,000 codes covering domestic lock and automobile codes.

Padlock Code Book Set (NPCB)



EIGHTH PRIZE

These three volumes offer 462,000 codes covering Dudley, American (Junkunc), Master and Yale.

Foreign Code Book Set (NFCB)



NINTH PRIZE

This volume set holds 432,000 codes for the complete variety of foreign codes, from Alpha Romeo to Yugo.

TECHNITIPS

Helpful hints from fellow locksmiths

Send in your
tips and win.

HOW TO ENTER

Simply send in your tip about how to do any aspect of locksmithing. Certainly, you have a favorite way of doing things that you'd like to share with other locksmiths. Write your tip down and send it to: *Jake Jakubowski*, Technitips Editor, *The National Locksmith*, 1533 Burgundy Parkway, Streamwood, IL 60107. Remember, tips submitted to other industry publications will not be eligible. So get busy and send in your tips today. You may win cash or merchandise. At the end of the year, we choose winners for many major prizes. Wouldn't you like to be a prizewinner in 1994? Enter today! It's easier than you think.



by
Jake Jakubowski

BEST TIP OF THE MONTH

If your tip is chosen as the best tip of the month, you'll win \$50 in cash! Plus, you may win one of the large year end prizes!

EVERY TIP PUBLISHED WINS

Yes, every tip published wins a prize. If your tip is printed, you'll win \$25 in Locksmith Bucks. You can use these bucks to purchase any books or merchandise from *The National Locksmith*. Plus, every tip published will win a copy of the Technitip Handbook.

These Prizes Awarded Each Month!

- All-Lock A 7000 VATS Decoder
- HPC Pistolpick
- Silca Rubberhead Keyblanks (100 Blanks)
- ESP PR-13 Professional Lock Pick Set
- Sieveking Products EZ-Pull GM Wheel Puller
- Technitips Handbook

Submit your tip and win!

October's Best Tip Opening Cash Safe

Early one Sunday morning, a convenience store that I occasionally work for, called to say they could not get their Tydel TACC-II open. The TACC-II (Timed Access Cash Control) is an electronically operated cash dispensing safe that is popular with many convenience store chains.

After I got to the store and waited for the timer to count down so I could push the door release button, nothing happened. I could hear the motor turn and the unit

"whine" like the door locking bar was lifting but the door remained firmly shut.

I put my hand flat against the crack where the door and the left front wall of the safe meet and pushed the button again. The motor whirred but I couldn't feel any vibration indicating the locking bar was lifting. I figured that maybe the control arm had come off the locking bar.

I knew if that had happened, all I had to do was somehow get a grip on the "pin" of the locking bar that the control arm attaches to and I could lift the bar and open the door.

Using an old sawtooth car opening tool I had, I bent the top in about a 20 degree bend, 6" from the top end of the tool. I did the same thing (in the same direction) on the lower part of the tool. Then I slid the tool between the right side of the top left drop chute door and the wall of the safe. (See illustration 1.)

I lowered the tool until I guessed it to be about even with the locking bar, pushed the top of the tool towards the safe (which pushed the bottom of the tool towards the door) and began to slowly lift the tool. I got lucky and snagged the locking bar pin on the first attempt. I continued to lift the tool until it

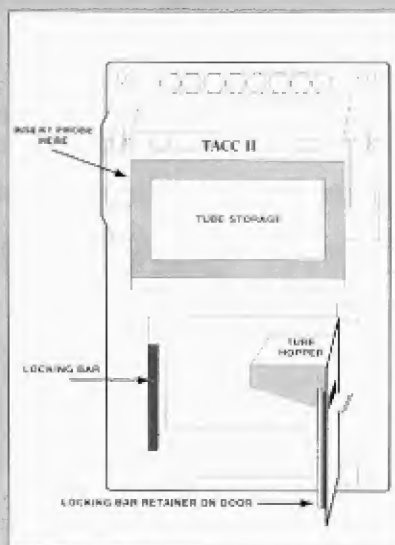


Illustration 1

would not come any higher, and then opened the door.

The star washer that holds the control arm to the locking bar had broken or come loose and allowed the control arm to slip off of the locking bar. It only took a new washer to repair the unit and get my customer back in service.

Terry Eldmondson
Tennessee

Editor's note: This is not an uncommon problem with TACC-II units. Another recurrent cause of a lockout is when the Motor Drive Assembly (Control Arm Assembly) or the upper control panel in a TACC-II

malfunctions. When that happens, drill a hole 12" up from the bottom left hand side of the unit and 1-1/2" in (back) from the seam where the front and side plates are welded together. You will have to drill through two thicknesses of mild steels. (The walls and door of the unit are constructed of 1/4" and 3/8" cold rolled steel.)

This hole will reveal the control arm just above where it attaches to the locking bar. Using a stout screwdriver or drift punch, drive the control arm off of the locking bar and then follow Terry's advice to complete the opening. This will work on the TACC-II and the TAC-IIR. (See illustration 2.)

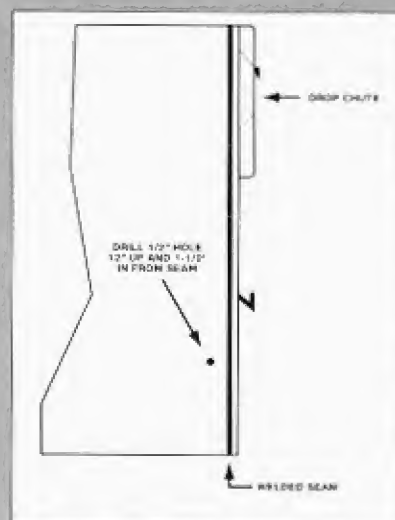


Illustration 2

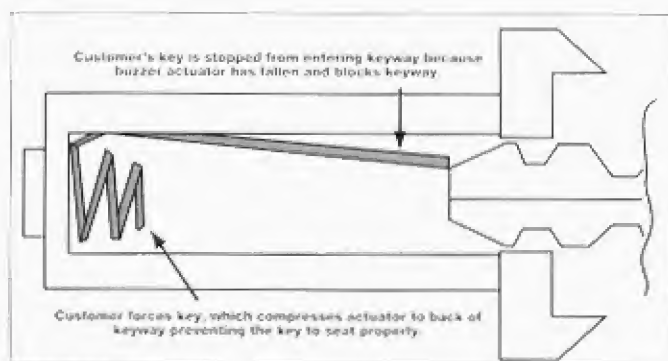


Illustration 3

All-Lock Vats Decoder Winner Ford Buzzer Activator

Any locksmith that does automotive lock work has probably had to do their share of Ford (5 pin style) ignitions where the buzzer actuator has fallen into the keyway and won't allow the key to enter. If you're called, it's fairly easy to get the ignition to turn with a "half key" that can pass under the buzzer actuator and turn the ignition so it can be removed and replaced.

Unfortunately, my experience has been that by the time I'm called to do the service work, the customer, their friends and well-wishers have all tried to extract the key. Unfortunately this typically has done nothing but compress the brass actuator into the back of the keyway, preventing the key from entering and seating completely. (See illustration 3.)

To help overcome the problem and remove the ignition without drilling (the majority of the time), I've come

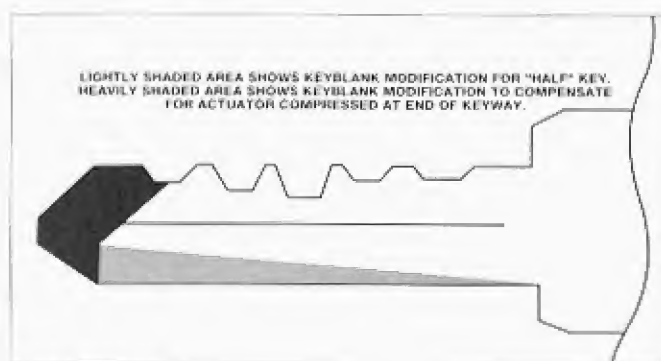


Illustration 4

up with the following:

Once you have found that your half key will not allow you to turn the ignition, remove that key and set it aside. Now, take an uncut H-60 blank, insert it in the keyway and lightly tap the bow with a small hammer.

That's right! You are going to compress the actuator even more. When the H-60 will not go in any farther (PLEASE! Do not pound on the blank, you only want to compress

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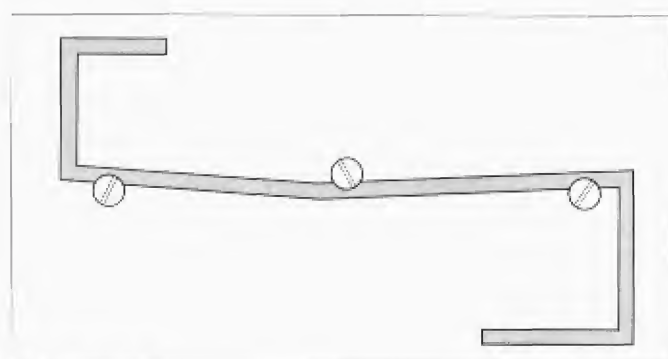


Illustration 5

the brass actuator as much as possible, not destroy the ignition), remove the blank.

Now modify your "half" key as shown in illustration four and use it to turn the ignition to the removal position. Because you cut the tip of the key off, you may have to work the key in and out of the ignition slightly to line up the cuts properly.

I still have to drill a Ford ignition occasionally but, I've found this trick keeps me from doing it as often as I had to before. Which is fine by me!

Laura Spellman,
Missouri

HPC Pistol Pick Winner
Keep Tools Straight

One of my greatest sources of aggravation in my service van has been fumbling through a plastic box, full of automotive lockout tools, trying to find the one I need, while still trying to look like a professional!

Last week, I used a piece of plywood, a handful of screws and a little "tinkerability" to solve my problem.

To get my tools in some reasonable order, I installed the piece of plywood to the rear of the van's bulkhead. To hold each tool in place, I used three panhead screws. The trick is to off-set the center screw from the center line of the other two. (See illustration 5.) The natural tension of these tools will keep each tool firmly in its designated spot.

This little trick keeps all of my most often used tools readily accessible, visible and tangle-free! I hope this idea will help another aggravated locksmith.

Ken Mastin, CRL
Georgia

*Silca Keyblanks
Winner*
**Broken Latch
Retraction**

The local Lions Club called me the other evening just before they were to have their bi-weekly meeting. They could not get the front door open and the back door was secured with a locking bar on the inside.

When I got there, I found the door was an inswing metal door with a Schlage D series knobset on it. The key would lock and unlock the knob, but when you turned the knob, the latch would not retract.

Because the door was an inswing and the doorstop concealed the latch, I could not get anything between the door and the jamb to try and slip the latch.

Figuring that the slide unit had disengaged from the latch, I measured 1" to the left of the center of the



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spindle and measured down one-half the thickness of the spindle. By drilling a 1/4" hole through the rose (escutcheon), I was able to expose the end of the latch and fish it open with a probe.

I replaced the broken knobset with a D53PD and used their lock cylinder.

Jay Christie,
North Carolina

**ESP Lock Pick Set Winner
Master 175 Combo Lock**

Opening the Master 175 Resettable Combination Lock can be done without drilling, or any damage to the lock. With a little practice, you can open one of these locks in about thirty seconds!

Use any short length of round spring steel with a small hook bent on one end. Insert the hook into the lock case, just above the number one wheel. (See illustration 6.) Angle the wire across the lock to the upper right portion of the lock case.

Now, turn the wire so the hook faces down towards the center of the lock. Depress the shackle halfway to release the tension on the mechanism. Pull on the spring wire and it will hook the locking plate and lift it up. Now, depress the shackle the rest of the way and release the lock is open!

To decode the lock, place it in a vise with the wheels facing you. Obtain a Weiser shim that you have filed or ground down enough so that it can enter the wheel slots. By inserting the shim into the upper right corner of each wheel slot, you can determine the number for that wheel.

Simply apply pressure to the shim

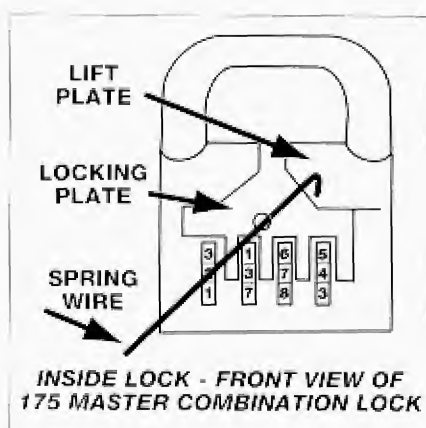


Illustration 6

and rotate the wheel under the it. when you feel the "flat spot" on the wheel, you have the number for that wheel. Repeat the procedure for the other three wheels and you have the combination for the lock.

The lock can be opened much quicker then it takes to tell about it.

Darrell Crow,
Idaho

**EZ-Pull Gm Wheel Puller Winner
Ford Trunk Lock**

Like any Ford product, impressing trunk keys for the Ford Taurus can be difficult because of the bluntness of the pins and their tendency not to mark well.

I've found that on the Taurus, it is easier to impression the trunk release mechanism inside the car, and just below the front driver's seat. These wafer locks impression far more clearly then the trunk lock pins do.

Once I have obtained my initial marks from the trunk release lever, I fine tune the key on the trunk if necessary.

Also, if the car is equipped with Ford's electronic push-button lock feature, the code can be found in the trunk, behind the rear seat carpet. Look for a 6" long, black box with a white tag imprinted with the code.

Steve Briarton,
California

American Padlock Opening

Have you ever had to open 15 or 20 American padlocks at one time on a store or factory? If so, you know how time consuming trying to pick or impression these locks could be. Especially, as in this case, when they are all keyed differently.

Here's an easier and quicker way that will save you time, money, and leave the lock usable after minor repairs:

Use a good pair of Vise-Grip pliers to hold the lock against the gate with the keyway pointing upwards. Using a strong standard screw-driver and hammer place the screwdriver between the plug retainer and the plug. (See illustration 7.) Force the screw-driver under the plug retainer

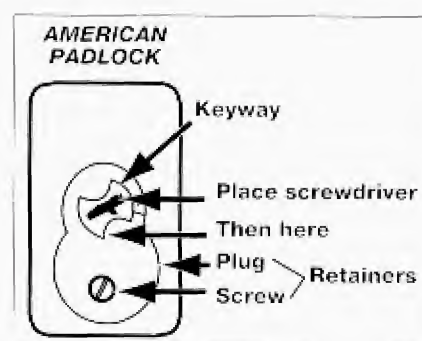


Illustration 7

with the hammer. A few good whacks and the retainer will crack on that side.

Now do the same thing with the screwdriver on the retaining screw side. When the retainer cracks and falls out, the plug can be removed and the lock opened with another screwdriver.

You now have the option to rekey or replace the locks. The locks can be repaired by using a new plug retainer and plug retainer screw.

George Mateo,
New York

Opening 1994 BMW

Today, I had a chance to open a 1994 BMW. I could not get the recommended tool into either door. In fact, I was afraid I might break the glass if I tried to wedge the door because the window was so tight.

Instead, I inserted a wedge in the upper part of the door and pried the door slightly ajar. This gave me enough room to insert a doubled length of binding tape and grab the lock button. When I pulled up on the button, the doors and the trunk (where the keys were) unlocked.

Allan Roberts,
Washington

Modify Car Opening Tools

Several automotive tools have a hook or "U" shape at the end of the tool to bind the linkage. But, these tools can be hard to bind if they have been lubricated, or are made of highly polished steel.

My solution is to dip these tools in a liquid plastic which is available from most hardware stores. Dip the tip of the tool, let it cure overnight, snip off

the excess and your new tool is a real grabber.

Dean Miller,
New York

Dental Picks

The next time you visit your dentist, ask him/her what they do with their old, used dental picks.

You could easily wind up with a new selection of picks and probes to use in your shop and service vehicles for pulling those hard to reach trapped springs or other odd pieces that can get stuck in the most inconvenient of places.

Len Wagner,
Illinois

Memory Keeper

Disconnecting the battery on some newer model cars before pulling the steering wheel to change an ignition or to obtain a code, can play havoc with digital clocks, programmed radios and electronics in general.

To avoid problems use Memor-EZE by Balkamp (part # 782-1609) which is

available at NAPA and other auto supply stores. This tool plugs into the cigarette lighter and the other end attaches to a 9 volt battery to maintain the settings on the electronics while you do your job.

Doug Trauschke,
South Carolina

Jake's Jewels

Here's something new for all you locksmiths out there that have been chomping at the bit for something different and exciting in the Technitips column. From time to time, You're going to get to read Jake's Jewels.

Jake's Jewels is just odds 'n' ends, and bits 'n' pieces of locksmith trivia and ideas that I come across in my travels and feel are worth passing on. Hopefully all of it will be information that a lot of you can use.

If you send me something that I don't use in Technitips but do use in Jake's Jewels, I'll give you credit for the idea (after all, I don't want everyone to think I'm totally responsible for what's printed here!), but no cigar. Jake's Jewels are not

intended to be prize winning Technitips, just good, common-sense, useful ideas.

•If the vinyl lettering on your van looks a little faded use Armor-All to brighten it up!

•Westley's Black Magic, a super thick silicone, (available at K-Mart, etc.) makes an excellent car opening tool lubricant. One application wiped on and allowed to dry, works well for many openings!

•In rainy or wet weather, liberally spray the distributor, coil and spark plug wires of your van with silicone. WD-40 or Tri-Flow will help prevent moisture from stalling the vehicle.

•Bob Sieveking says that Amway's LOC detergent cut 50/50 with water and a small nail brush will get the grease and graphite from around your nails and off your fingers.

•Clear nail polish, sparingly used, on the threads of a deadbolt's retaining screws will help keep the lock tight on a metal door.



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BITS & PIECES

Informative Tidbits for the Security Industry

The article "Security Or Traffic: Door Control" found on page 14-ISC of the August 1994 The National Locksmith is cited as being reprinted from the Arius CCTV and Access Control Handbook.



by
Tom Seroogy

The article in its original form was written and submitted to Arius for use in their handbook by Bob Cook of Securitron.

A new Foreign Lock Pawl and Clip Service Kit is now available from All-Lock. The kit, part #A-6940, contains various clips and pawls for 1977 to 1990 Toyotas, 1980 to 1989 Hondas and 1974 to 1991 Nissans.

For more information contact an All-Lock distributor.

In "Make The Most Of Your Machines" (*The National Locksmith*, August 1994), locksmiths are instructed on making the spacing adjustment for the HPC1200 code machine. While this is a common procedure for adjustment, HPC has forwarded the factory approved method. There are two parts to this adjustment.

Part one. Insert a factory cut tip stop key, such as Best, and the corresponding code card into the machine. Having a deep cut at the tip of the key is preferred.

Place key into vice using tip stop and, moving the cutter to the cut nearest the tip on the key, align the needle with the corresponding mark on the card. If the cutter is centered on the cut of the key proceed to part two. If not, loosen the four set screws

(two bottom, two inside bottom) on the carriage. Lightly tap the carriage (at the bottom) to center the cutter on the key cut. Tighten set screws.

Part two. Place a shoulder stop key, such as Schlage, and the corresponding code card into the machine. Moving the cutter towards a deep cut on the key, align the needle with the corresponding mark on the card. If the cutter is aligned with the center of the cut on the key you're set.

If not, loosen the vice and move the key so the cut is center with the cutter. Next, move the carriage left, away from the cutter, and swing the shoulder gauge up to the key. Loosen the shoulder gauge shaft set screw found inside-center on the carriage (second shaft from top). Turn the shaft in the appropriate direction until the shoulder gauge just touches the shoulder of the key. Tighten set screw.

News from Auto Security Products. A new face cap for the Aspire door and trunk locks is expected for October, part #P-40-201. Except for having a slightly larger diameter, this cap looks similar to the Toyota caps P-30-208/P-30-211/P-30-217. In an emergency, the Toyota caps will work if the front of the lock is filed down slightly.

Also, locksmiths using Auto Security Products' Toyota tumblers P-30-141, P-30-142, P-30-143 and P-30-144. Many of you have been baffled by the numbers stamped on these tumblers. Here's why.

These tumblers are provided by the tumbler manufacturer and not the lock manufacturer. These same tumblers are used by various lock manufacturers for use in auto locks, motorcycle locks and various Japanese industrial locks.

The problem arises from the manufacturer's depth designation stamped on the tumbler. While Toyota designates their depths 1, 2, 3, and 4, as we are accustomed, other manufacturers designate the depths as 0, 1, 2 and 3 (0=1, 1=2, 2=3, and 3=4).

Don't let the number designation on the side fool you. If the tumbler is the correct depth, disregard the stamped number on the its side. When checking your new orders, also check for the correct depth and disregard the number stamped on the tumbler. The color and numbers stamped on the tumblers will change per the lock manufacturer's requirements. The dimensional specifications, however, do not change.

A-1 Security Manufacturing Corp. now has available the Pak-A-Punch™ Model 3S, five new Quickchange Kits, and a Schlage conversion kit.

The Model 3S is virtually the same as the original Model 3 except that it comes fully equipped for cutting Schlage keys. Using the Schlage conversion kit, part #PK3-CV, the Model S can be converted to cut Schlage keys.

Also new are the PAK-G04, PAK-MZ1, PAK-MZ2, PAK-T1 and PAK-T2 Quickchange Kits that allow the Model 3 to cut keys for Geo, Chrysler, Mitsubishi, Suzuki, Ford, Mazda, Toyota and Daihatsu.

This is an excellent way to expand on-the-road key cutting service where power is not available.

Star Key has just released some new key offerings. Included is the CHR94 (-NP) for the '94 Chrysler, the KWT(-NP) for the Kwikset Titan and

the series CB1, CB2, CB3, CB4, CB5 and CB6 for the Club® auto lock.

Some incoming news from the ALOA show in Las Vegas this last July. Fort Lock announces the winners of four Waterloo 15-drawer tool carts drawing: Gary's Locksmith Shop of Rockfalls, IL; Leslie & Associates of Seiling, OK; Columbus Lock & Key of Columbus, MS; and Sparks Locksmith Service of Lake Wales, FL. Congratulations guys, and thank you Fort Lock.

Monaco Lock Company now has available its Volume 9 catalog. Those wishing a copy can contact Monaco at 800-526-6094.

Morse Watchman, Inc., manufacturer of the Key Watcher DK10 and other electronic access key cabinets, has moved to a new facility. The new address is 2 Morse Rd., Oxford, CT 06483. The new phone is 203-264-4949, and fax is 203-264-8367.

An update and clarification on the Mazda Millennium was just sent to me from Michael Hyde, one of our auto writers and producer of the AutoSmart auto encyclopedia now being offered by *The National Locksmith*.

The Mazda Millennium uses an internal, four-track, high security keyway. The code series is from 20,000 to 212000. The tumblers and keyway are identical to the Lexus except for the tumbler arrangement. If you make a key to the door or trunk, that key will fit the ignition without further progression.

To make keys for the Millennium, open the car, make sure the trunk lock-out switch is in the OFF position (this switch is found in the top-front section of the glove box). Now press the electric trunk release on the drivers' door.

With the trunk open, remove the trunk lock. Make a key to this lock, it will be the master key. To make a valet key, cut the number 8-right cut to a 3 depth. The tumblers are all numbered (but are reversed. 1=5, 2=4,

3=3, ect.) and use the same opposing track MACS as the Lexus. (See chart for tumbler positions.)

Millennium Tumbler Positions

LEFT	TIP	RIGHT
X	8	T/G
I/T/D	7	I/D/T/G
I/T/D	6	I/D/T/G
I/T/D	5	I/D/T/G
X	4	I/D/T/G
X	3	I/D/T
X	2	I/D/T
X	1	I/D/T

X=Not Used
I=Ignition
D=Door
T=Trunk
G=Glove Box



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by
Brian H. Kleiner, Ph.D.

DEFINE SUCCESS

We need to develop a perspective that feels right concerning what good living means to us.

Your time is your life. It is the most important resource that you will ever manage. Done well, you will feel fulfilled personally and your locksmith business will prosper financially.

As most of you reading this are small business owners, you don't have to be reminded about how much time is required on your part to make your business successful. On average, you put much more time in your business than those working for corporations or the government. The fact that you are still in operation is a credit to you as many small businesses do not make it past the first few critical years.

The purpose of this article is not to have you work harder. As the survivors in a tough, competitive business, I suspect you work hard enough. Rather, it is to have you manage your time more effectively, and thus hopefully not to have to work so hard.

The most important question I'd like you to think about is this: "What is your vision of a successful life?"

None of us has the time to achieve perfection in every area of life. And if

unhappiness is not knowing what you want and killing yourself to get it, we should not try to do so. We need to develop a perspective that feels right concerning what good living means to us.

To get connected to this vision, you might do the following:

1. Reflect upon your life as you have lived it so far. On which occasions were your most happy? List them. Afterwards, ask what themes do these occasions have in common. Then ask, "How well do I currently use my time to incorporate these themes in the activities I undertake?" If you are like most of us, the answer normally is, "Not very well."

2. Now jump way into the future as we confront the reality of the closure of our life upon Earth. What can you do in your life today that would give you the greatest sense of satisfaction and inner peace tomorrow? How many people upon their death bed and surrounded by their loved ones do you believe wish they spent more time in the shop?

3. Who are the people most important to you? What does each expect and need from you? What is the legacy that you would like to leave each?

Hopefully, answering these questions will help you acquire a perspective concerning how to live a more balanced life. Many of us have other family members working in our

business. It is important that in our pursuit of business success that these relationships not suffer.

It is also important that our health not suffer unduly in the process. Perhaps some recent experiences in my personal life and the lesson I learned from them would be helpful for you as well. About a year ago I became greatly disenchanted with my declining financial fortunes. California's economy was in the pits and dragging me with it. I became driven to reverse this trend. I worried continually that the quality of my life and my family would suffer greatly if I didn't make more money.

Therefore, I tried to do increasingly more activity in less and less time. After all, time is money. The result was not that I became rich. Rather, the result was that I became sick much more frequently. I only learned afterwards that a stress driven life kills T cells, a necessary part of our body's immune system.

Kept up for an extended period of time, stress, like AIDS, not only shortens life but destroys important relationships and the quality of life. Even if the pursuit of money is the most emphasized direction in one's life, doesn't it make sense to pace yourself so that even if you earn a bit less each year, you'll live longer, making a lot more overall. And the quality of your life and relationships along the way will benefit considerably by a relaxed pace. In effect, you will accomplish more by trying less hard!

In this article, I've tried to emphasize effective time use of doing the correct things. This tends to be the neglected area of most time management literature. In a later issue I will suggest some ideas for efficient time use doing things correctly.





by
Gene Gentry

DON'T PASS ON PROFITS

*I couldn't make a new door,
but I knew someone who could.*

A call came from a man who asked if I could repair a damaged door. Stopping by his house, I thought if it was damaged in the latch or knob area I could use a metal reinforcing or decorative plate to cover it.

The door was 30", hollow core and painted, leading from the laundry room into the family room. About 18" above the door knob was a one-sided deadbolt, having only a thumb turn on the inside.

What had happened, the man explained, was that his small sized wife had locked her self out of the house. She had become so angry that she gave the door a violent kick. The door jam held intact, but the door gave way at the dead lock location, splitting it wide open.

When I saw the door, I realized it would have to be replaced. I've installed a few, but had to do the routing on the hinges free hand. Without a jig, no matter how careful you are, the router will run slightly over a line, leaving a less than professional looking job.

The solution to this problem? There is a place that I pass by a thousand times a month that has a sign in front saying, simply - DOORS. The owner showed me all the different size prime doors that he carried. He told me to bring in the old door and he would make one just like it including the hinge cutting and mounting.

In the morning, I took the door in to the DOOR shop, and it was finished about four hours later. Now, I had to think about painting the door. The customer had told me the color was Navajo White, which, by coincidence I had one can of in my garage. (And one of the reasons I accepted the job.)

The door was painted that afternoon, and I called the customer to tell him I'd be ready to install it the next morning.

All I had to do was to put the pins in the hinges. The door fit perfectly. The customer also wanted the

deadbolt keyed to his house. This was easy to install as the shop had cut out for the deadbolt.

The moral of this story is to check out all jobs. If they are beyond your

expertise, sub that portion of the job to someone else. Use all the resources you can and turn a profit.



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by
William D. Heine, Jr.

FROM STEALING TO SEALING

Indicative systems can provide a much different level of security than do the standard physical barriers.

Chief Warrant Officer Three Bill Heine serves as Chief of the Counter-Surreptitious Entry Section at the U.S. Army's 902d Military Intelligence Group Counterintelligence Technical School at Fort George G. Meade, Maryland.

Heine will be covering some conventional and some not-so-conventional aspects of security for The National Locksmith. While some of the subjects may not have a direct bearing on your profits, they will increase your awareness of the varying security measures available to you, the security expert, and your customers.

Recent trends in the design of physical security systems point toward a departure from the barricade mentality. Years of experience have obviated the fact that we cannot keep a determined attacker with advanced training and/or technical support from gaining access to protected items or areas simply by placing a hardened barrier in his path. For external threats, a common sense approach to physical security planning dictates the use of interlocking layers which not only deter or delay potential attackers, but alert a well prepared response force that a security breach has occurred.

Toward this end, security systems designed to withstand aggressive attempts at forced entry are increasingly being used in conjunction with "indicative" systems. This indicative family of security systems includes (but is not limited to) cameras, sensors and access control devices which offer audit trail capability. Thoughtful integration of indicative security systems can help thwart covert or surreptitious entries which might not be readily detectable through physical examination of standard security hardware. Proper design of an outward looking security system is only half the battle, however.

Both government and commercial security planners are beginning to

shift emphasis towards minimizing the threat with the most potential for damage, that of pilferage or sabotage by insiders. Thorough pre-employment screening is part of the solution, but effective physical safeguards which can signal the need for investigative action within the workplace are also required. This is especially true in instances when security must be provided for an area which sees a high volume of pedestrian traffic or when sensitive materials are transported by third parties not directly employed by the originator. As customer service based industry grows, both situations become more prevalent.

Perhaps due to lack of familiarity, many security professionals are overlooking one of the simplest and most cost effective techniques for deterring and detecting internal theft. Tamper-evident, tamper-indicating and tamper-resistant materials represent a family of indicative systems which can be used effectively as a visual deterrent to tampering and as a tool for streamlining internal security assessments.

Tamper evident materials come in a wide variety of shapes and sizes, with systems tailored for many specific applications. These systems range from specialized coatings containing microencapsulated dyes to serialized self-sealing bags and envelopes which show a void message when opened. Perhaps the system with the widest variety of applications, though, is the tamper-indicating label seal. A label seal is a difficult-to-remove adhesive backed device which can be made of one or more layers of paper or sheet plastic. It is designed to be applied across an opening so that under normal circumstances, it must

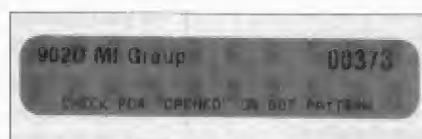
be damaged to gain entry to the container it is used to protect.

A number of manufacturers offer relatively inexpensive stock label seals. These stock seals can be loosely grouped into five major categories - distortive, frangible, self debossing, self-expiring and self-staining. Regardless of type, all label seals incorporate an aggressive adhesive backing to prevent easy removal and replacement.

Distortive seals are made from light weight film or foil which changes shape irreversibly when attempts are made at removal. Frangible seals are constructed from brittle film which breaks into small pieces if an attempt is made to peel it away from the surface to which it is applied. Self-debossing seals normally display a message such as "void" or "opened" when an attempt is made at removal. Self-expiring seals change color or display a particular message over a predetermined period of time. Self-staining seals are designed to stain when solvents or adhesives are applied to their surfaces. In addition, some high quality label seals incorporate advanced design features such as specially reflective printing, holography or prismatic effects to make counterfeiting more difficult.

A growing number of companies (commonly referred to as converters) are capable of producing customized label type seals. Converters can combine a wide variety of adhesives, dyes, films, release solutions and printing techniques to fabricate

seals with specialized characteristics to fabricate seals that display unique void messages and logos, provide optimum performance within a specific temperature range, are resistant to various environmental factors and chemical compounds; and seals that adhere best to a particular



1. Seals, such as this one are a powerful tool for companies who want to stop pilferage and internal stealing.

surface.

Bar-coding can be incorporated in many cases to speed information processing. In addition, converters can incorporate "traps" in label seals. Traps are substances or designs whose presence in the seal is not readily apparent to the casual observer. They can aid in preventing substitution of label seals by providing positive identification of a particular seal as an original. Trap systems can include techniques such as micro-printing and the use of phosphorescent materials.

Use of label type seals does not begin and end with their acquisition however. Effective use requires implementation of a comprehensive security seals program that addresses acquisition, control, accountability, placement and inspection. Although this program does not have to be time consuming, it does require attention to detail.

Prior to the purchase of any label seal, an assessment must be made as to the sophistication level of persons who may attempt to defeat the seal. A determination must also be made as to whether the system is to be used primarily for visual tamper deterrence, discreet tamper detection or a combination of deterrence and detection. Additionally the environment(s) in which the seals are to be used and the surface(s) to which they will be applied must be identified. The answers to these questions will dictate the type of seal necessary. In many cases stock label seals which meet your customer's specific requirements can be obtained at costs well below those charged for custom designed items.

Several issues must then be addressed as part of the initial purchase agreement. The supplier should be given the signatures of those authorized to reorder seals or modify seal requirements. The supplier should only react to requests bearing original signatures of the specified requesters. Resupply or modification requests via facsimile should not be initiated or honored. A single address (which includes your "attention line") should be specified for the initial and all subsequent deliveries. A mode of delivery which requires an authorized signature should be used. If your customer's seals are custom designed, the design details should be treated as

confidential information.

Your customer's seals should never be provided to another entity as an example of the work performed by the supplier. Serial numbers used on your organization's seals should be sequential, and should never be repeated. Failure to implement these requirements during your initial purchase negotiations can make it much simpler for a potential adversary to attack your customer's system through substitution or duplication of your seals.

Once the label seals have been delivered, access to unissued seals should be limited. The seals themselves and the log used to record their issue, placement and destruction should be kept under lock (a high security cylinder or combination lock) and key. If seals are to be issued from a central location and used elsewhere, two sets of logs may be required, one for the issuer and one for each placement/inspection team.

Log books should contain both a sample of a properly applied seal and a sample on which removal has been attempted (to demonstrate the seals voidance characteristics). Detailed instructions for placement and inspection of the seals should be included in the log book. A diagram or photograph that illustrates seal placement on specific types of containers may also prove useful.

All issued, applied and voided seals should be recorded in the applicable log book. Log entries should include at a minimum date/time of issuance, placement or voidance; seal serial number, container serial number and the signature of the individual who accomplishes seal placement/inspection. Additional space should be allotted for entries during the conduct of periodic seal inspections, when seal removal and replacement is not required.

For large operations, removal and replacement of all seals should be conducted by a single two-person team when possible. Inspections should be scheduled frequently at

random intervals. Since tamper-indicating label seals are a passive security tool, frequent physical inspection of all installed seals is a must. Periodic 100 percent removal and replacement of all seals is recommended. In doing so the team can help thwart attempts at substitution or duplication by varying the color or design of the seal used.

During the inspection of previously applied seals, the inspector or team should check for damage, discoloration, distortion, excess adhesive

around seal edges, proper seal placement, proper seal type, seal presence, serial number which matches log entry, scratches, or void messages. Any one of these conditions can indicate tampering with an applied label seal.

Perhaps the most critical aspect of the entire security seal program is how inspectors react to indications of tampering. Since the primary purpose of a security seals program is, normally, to signal the need for investigative action, inspectors must have a specific plan for actions to be taken once tampering is detected. Persons conducting a seal inspection program should never assume that a seal is missing or has become damaged due to reasons other than intentional tampering. Once tampering is detected, the chain of investigative actions should commence immediately.

The options available to the security practitioner in terms of high quality label seals have increased dramatically within the past few years. Incorporation of these simple devices into your customer's layered security system can result in savings of both time and money which far exceed the cost of the devices themselves. Label seals are a practical option for monitoring your internal security situation. Implementation of an effective security seals program may just be the smartest internal security decision your customer can make this year.



2. Understanding the customer's security need is essential to deciding on a label or seal.

THE WONDERS OF LOCKSMITHING

The excitement of the new position quickly evaporated. As an apprentice I was sure to be assigned bench work in the back of some dark shop

by Jeff Ehrensaft

My first day of locksmithing, I left extra early that morning excited at being initiated into a new found trade. The excitement of the new position quickly evaporated, however. As an apprentice I was sure to be assigned bench work in the back of some dark shop.

"A job for mushrooms," I thought to myself. The dreams of meeting new customers, sharing my mechanical and security prowess with others, and walking away from a job well done were washed away in the cold drizzle of the morning.

As expected I began learning the daily tasks like answering the phones, quoting prices, duplicating keys, and scheduling service calls. Not quite what I had hoped for; I really yearned to be out on service calls much like the other locksmiths in the company. What an impressionable and boring first day this was to become.

By day's end I looked forward to going home. Only one call remained, a deadbolt for a woman who had called earlier that morning.

Snatching the call sheet out my hand, the boss let the rest of the employees go for the day. I watched as he methodically grabbed the materials and tools he needed.

"Uh, ya know, with this being the last job of the day," I hesitated, "maybe it would be a good idea if I came along and, uh, watched how this was done?"

I stood a second then turned to get my coat and keys. No answer. The sun was low in the sky, I wanted to go home.

"Yeah, that's a pretty good idea," came a muffled answer from behind the desk.

Man, what a break, I was able to go on my first service call. Anxiously, I sat in the passenger seat of the service vehicle. My hopes focused on learning how to install a deadbolt. I was overwhelmed.

Arriving at our destination I retrieved the tool box from the back of the truck. I had reached the next level in locksmithing – "gopherdom." That period in locksmithing when the disciple hangs on every word of his teacher; laboriously emulating every move, every step, every idiosyncrasy of the master; graciously running for tools, holding hammers, lubricating locks, following like a puppy. I had arrived!

Running with arms loaded I followed the boss into the two story home. Carefully avoiding the children and toys scattered across the living room floor, we both followed the lady in a steeplechase manner to the side door where she wanted the dead bolt to be installed.

"Can I do it?" I asked. To my surprise I was instructed to put the boring jig upon the door.

With my boss peering over my shoulder and the noise of a 1,000 screaming children in the background, I began to tremble.

Horrible 'What-If' thoughts ran through my mind. "What if the boring jig slipped? What if the hole's crooked? What if the hole is too high? What if the hole is too low? What if it's the wrong backset? What if...?" Suddenly, I felt a shove from behind followed by an irritating screech.

"C'mon, hurry up, let's go." My boss was pushing.

Regaining my composure, I successfully drilled the door holes and marked the door jam. Needing to change drills I began to search for the missing chuck key, but was unable to locate it in the mess referred to as a tool box.

"You don't need a chuck key, do it like this", he snarled, grabbing the drill from my hands.

He held the drill under his arm and attempted to undo the chuck. What was wrong with this man, hadn't he ever heard of a chuck key before!

I was then instructed to mortise out the door jam. Cautiously, I started when suddenly, again, I felt a push from behind.

"C'mon, hurry up, let's go," said the boss, squawking like a parrot. The noise escalated in the background.

Frustrated, I raised the hammer and struck the chisel with more force than I had intended. A fragment of the wood broke away from the once perfectly shaped mortise. A pristine example of what I could accomplish was just flushed down the toilet.

Then, without hesitation, the boss picked up the piece of wood, licked it, and slapped it back into place.

"Hasn't he ever thought to use glue," I thought. "What is wrong with this man? That won't hold"

I turned. "Shouldn't we use some glue?" I had to ask.

"Don't worry about it. c'mon, let's go." He snarled again.

Finally the mortise was finished. Time to install the strike reinforcer plate. Placing the reinforcement up to the frame, the moist fragment let go and fell to the floor.

We glued it back in place and I started to put in the 3" reinforcement screws.

"Stop!" A hand grabbed my shoulder and pulled me back.

"You want to lubricate them first," said the parrot, "lick them first!"

Hesitating, he grabbed the screws out of my hands and licked them. The reinforcer was installed, then the strike plate, and finally the dead bolt.

The lock operated smoothly. At last, the job was complete.

I got home and collapsed. Locksmithing in all its wonders, a day I won't (can't) forget. Even to this day I'm amazed at what I learned my first day on the job. I wonder what I'll learn tomorrow?





by
Tom Sarogy

GM AIRBAG AND IGNITION REMOVAL

*A step by step review of ignition lock removal
on airbag equipped GM columns.*

To meet federal safety standards, GM has employed a Supplemental Inflatable Restraint (SIR) system in many of their vehicles. (Previous attempts by Buick, during the mid-1970's, did not last long.) Starting in 1989 Cadillac offered the SIR or airbag, and is now used by all GM brands.

Currently, there are two types of airbag modules used on the GM Saginaw, round column - the more common bolt retained unit used on all GM airbag columns; except the 1995 Blazer S and T and Suburban C and K which now use a new quick release version (see *The National Locksmith*, May 1994).

Following is the accepted service procedure for removing the ignition switch on columns with these airbags as provided by training from the General Motors Service Technology Group (STG).

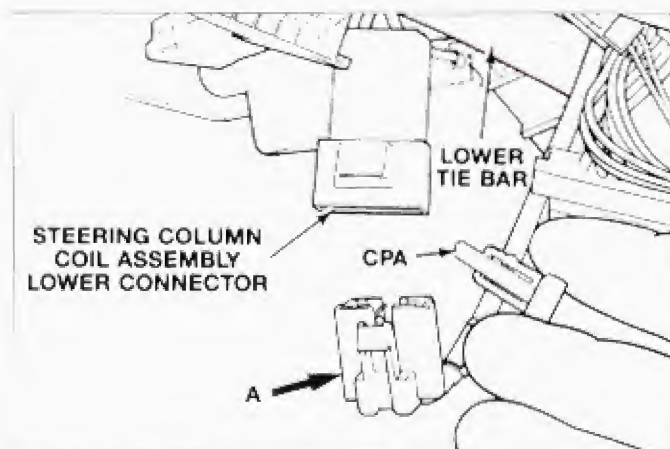
1. Disconnect negative battery connector. Tape connector so that there is no possibility of it coming into contact with the battery terminal. Wait 10 minutes.

There has been much debate as to the necessity of this step. Many leading locksmiths and non-GM trained mechanics say it is not necessary and point to dealer provided service manuals that neglect this step.

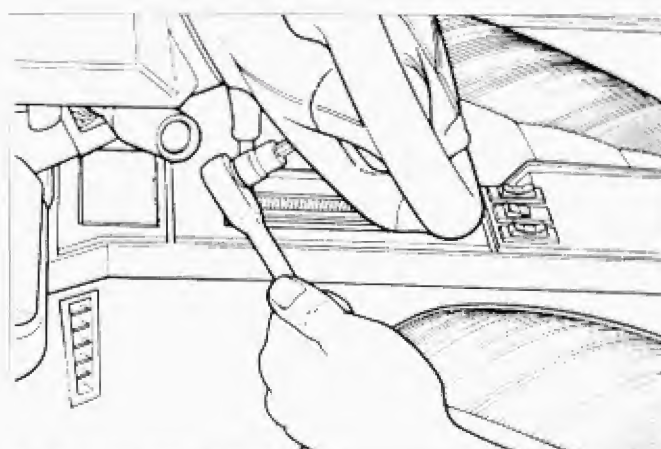
However, as GM's accepted training center, STG and its manuals place this as the first step in disabling the SIR system.

Other precautions such as grounding during service of ESD (electro-static discharge) sensitive components like the DERM (Diagnostic Energy Reserve Module) is also recommended.

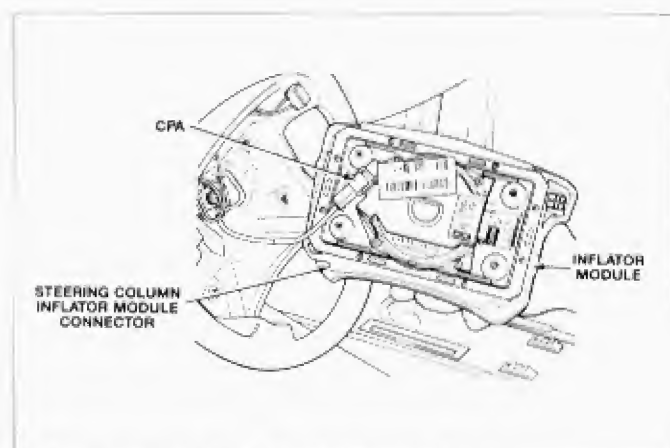
The 10 minute wait is based on the DERM's discharge rate after the ignition has been placed in the OFF position. The DERM serves two purposes: One, it acts as a battery backup system should the battery be displaced during an accident and prior to airbag deployment. And, two, it stores the history of airbag activity



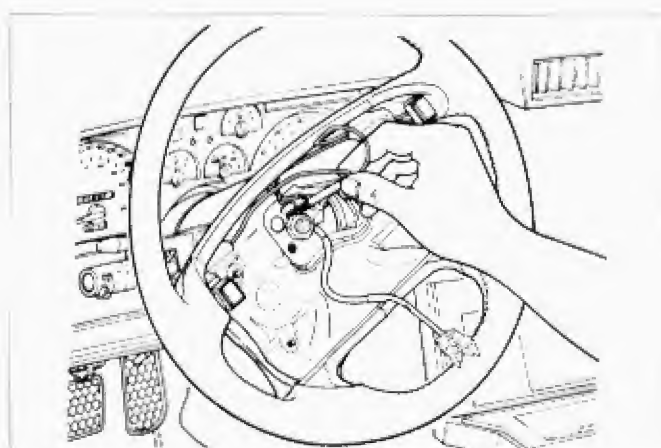
1. Remove CPA and lower connector



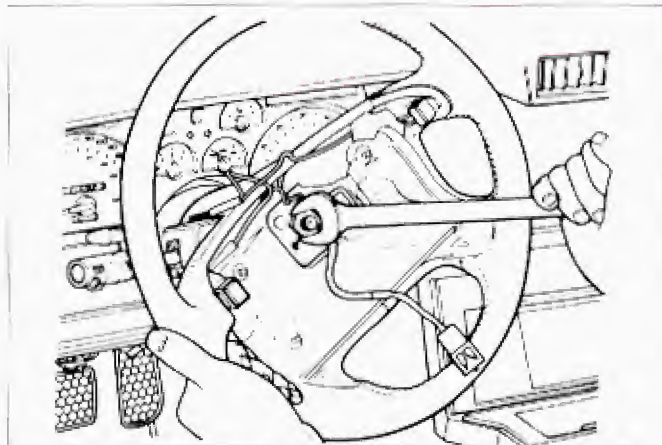
2. Remove airbag module.



3. Remove module CPA and connector.



4. Disconnect horn connector lead.



5. Remove steering shaft nut.

(i.e. number of deployments, faults, etc.). The DERM must be replaced after three successive deployments of an airbag module.

A capacitor on the serves as the battery backup and is recharged every time the ignition is turned to the ON position. Discharge begins after the ignition has been turned to OFF and takes approximately 10 minutes. A vehicle that is known to have been sitting for any period longer than 10 minutes without being turned ON has already discharged the. Service can begin immediately. If it is unknown how long the car has sat without being ON, wait the 10 minutes.

2. Remove the SIR fuse from the fuse panel.

3. Remove the driver's side knee bolster (the knee pad trim just below the dash). Locate the SIR wire loom (always yellow except for Geo Storm which is orange) and the steering column coil assembly lower connector. (See illustration 1.)

On the side of the connector is a blue Connector Position Assurance (CPA) clip. Use a pliers to gently

remove this clip and disconnect the lower connectors.

4. Remove the airbag module from the steering wheel. For most GM's with round columns, four bolts must be removed using a T30 torx driver. (See illustration 2.)

On the 1995 Blazer and Suburban the module is released by inserting a probe into the quick release access holes on the back of the steering wheel.

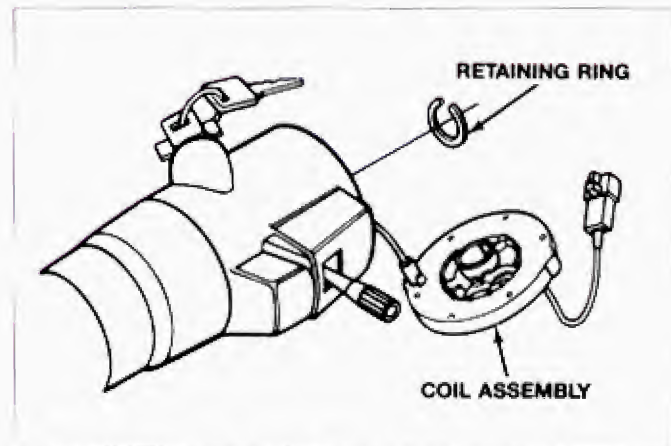
5. Remove the CPA and disconnect the inflator module connector from the module (See illustration 3.)

6. Remove horn connector lead from horn tower. If equipped with radio controls, remove radio control connector. (See illustration 4.)

7. Remove steering wheel nut. (See illustration 5.)

8. Use a ring spreader to remove coil assembly retaining ring. Then remove coil assembly. Pull up gently on the unit, allowing it to hang from of the column. (See illustration 6.)

[Note: At this point it is imperative



6. Remove coil retaining ring and coil assembly.

that the steering wheel not be turned. The coil assembly and steering shaft are timed. A spring lock locking tab locks the coil in position relative to the steering shaft and is ready for replacement. Moving the steering shaft or coil assembly will require you to recenter the coil and steering wheel.

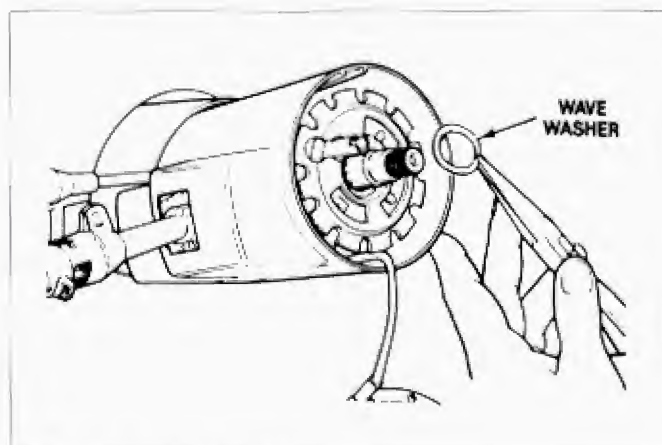
9. Remove wave washer just below coil assembly. (See illustration 7.)

10. From this point on, the procedure is identical to standard GM column service with one exception – a longer steering wheel lock plate compressor must be used.

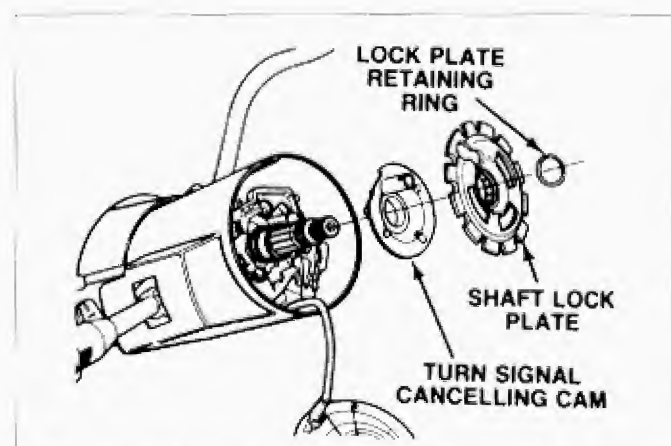
Using the correct compressor, remove the lock plate retaining ring and shaft lock plate. Then remove the turn signal canceling cam. (See illustration 8.)

11. Using a #2 Phillips head screw driver or Posi-drive screw driver, remove the turn signal arm and the three turn signal switch mounting screws.

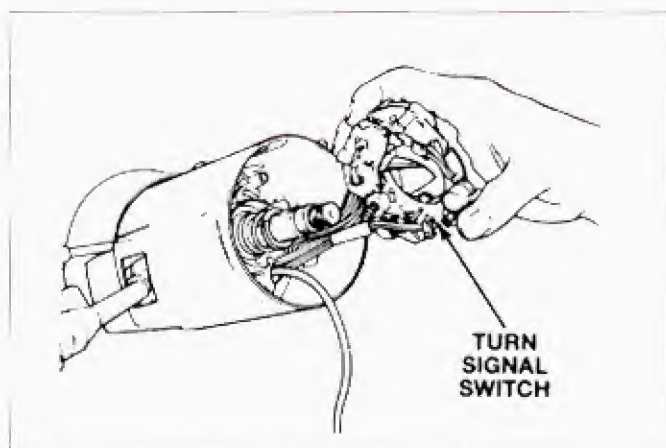
Gently pull the switch up and over the steering shaft. (See illustration 9.)



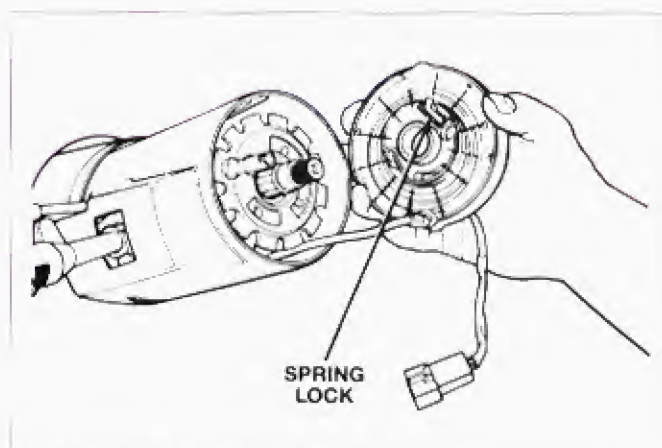
7. Remove wave washer.



8. Remove steering lock plate and canceling cam.



9. Remove turn signal switch assembly.



10. Location of coil spring lock.

12. Remove the ignition lock retaining screw, service or replace ignition lock.

13. To reassemble, reverse the procedure. When placing the coil back in place, make sure its loom slides down into the column and is seated well below and out of the way of the steering wheel lock plate. Reaching below the knee bolster and pulling on the lower coil assembly connector may be necessary for this to be accomplished.

Coil Centering

In the event the coil and the steering wheel become mis-timed use the following procedure to time the coil.

1. Turn steering wheels to straight forward position.

2. Remove the coil assembly and observe through the rear, clear portion of the unit. The spring lock and the coil ribbon can be seen from this side. (See illustration 10.)

Hold down the spring lock and rotate the hub of the assembly in the direction of the arrow until it stops. The ribbon should be wound snug against the center of the hub.

3. Still holding down on the spring lock, turn the hub in the opposite direction 2-1/2 turns. Release spring lock.

4. Reassemble column.

5. To check operation of the SIR system and to confirm the coil timing, start the vehicle.

6. Rotate steering wheel to the full left and then the full right position.

7. Turn the ignition OFF.

8. Now turn the ignition to the ON

position. The SIR light on the dash should flash seven to nine consecutive times. If not, the coil may be damaged or there may be another fault present.

Check coil ribbon for apparent break (replace if necessary), check all loom connections then turn ignition to

ON position to check system light again.

If problems persist, refer vehicle to authorized dealer to perform further diagnostic tests.



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KEY CODES

1994 GM Codes JR00-JZ99/PA00-PP99

HPC 1200 GM

Code Card - CF215

Cutter - CW1011

Stop - 1054R Tip Stop (Ford 10-Cut)

Framon

Out start - .216"

Out to out - .092". Spacing Block #3

Cutter - FC6445

Key Clamping - Lay spacing clip

F2MS552 flat on left side of vice and align from tip.

Cuts

Cam - GM6

Carrage - GM6A

KEY BLANKS

B&S 5895936

Sica GM37(EP)

Curts B82

Iico P1102

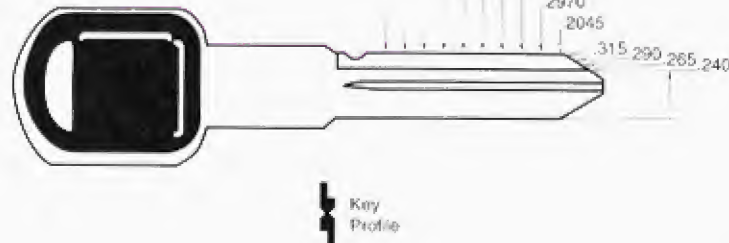
Jet B82(PH)

EZ B82

ESP B82

Spacing and Depths using
Universal Micrometer
Card #53.

	Spacing	Depth
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2	.2775	.290
3	.3700	.265
4	.4625	.240
5	.5550	
6	.6475	
7	.7400	
8	.8325	
9	.9250	
10	1.0175	

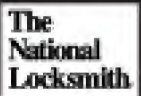


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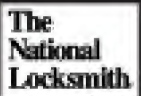
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1994 GM Codes

JR00-JZ99

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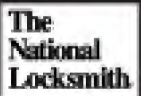
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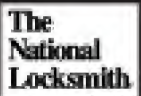
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1994 GM Codes

JR00-JZ99

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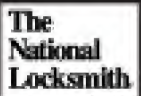
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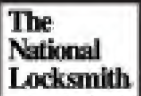
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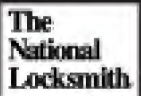
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PF64	2243233213	PG25	2243344322	PG86	2244334322	PH47	2243342323
PF65	2243234243	PG26	2242432443	PG87	2242323134	PH48	2244342422
PF66	2243321242	PG27	2243131232	PG88	2243342232	PH49	2244342423
PF67	2242334432	PG28	2243113212	PG89	2243324244	PH50	2243134324
PF68	2243431212	PG29	2244324334	PG90	2242434342	PH51	2242311344
PF69	2311211344	PG30	2242243112	PG91	2243223442	PH52	2244331124
PF70	2243123113	PG31	2244334323	PG92	2244344222	PH53	2311212243
PF71	2243322442	PG32	2242342132	PG93	2243211342	PH54	2242312433
PF72	2243424232	PG33	2244323243	PG94	2244313112	PH55	2243324342
PF73	2243442124	PG34	2243231132	PG95	2243443123	PH56	2244323444
PF74	2243213212	PG35	2243211313	PG96	2243121323	PH57	2244324324
PF75	2242243442	PG36	2242311333	PG97	2242324313	PH58	2242443123
PF76	2244221344	PG37	2243343113	PG98	2243134434	PH59	2242332313
PF77	2244234212	PG38	2242323344	PG99	2244213313	PH60	2244331313
PF78	2243242133	PG39	2244243134	PH00	2244233423	PH61	2243344334
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PF81	2243122343	PG42	2243322132	PH03	2243242113	PH64	2242343432
PF82	2244213112	PG43	2243443434	PH04	2243421133	PH65	2243112433
PF83	2244311224	PG44	2244332242	PH05	2242311342	PH66	2243132313
PF84	2242434423	PG45	2242344213	PH06	2244311244	PH67	2243124332
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PF87	2243211323	PG48	2242431344	PH09	2243244334	PH70	2243321342
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PF90	2242334342	PG51	2243221332	PH12	2244221342	PH73	2243434422
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PF92	2243113122	PG53	2242424334	PH14	2242343342	PH75	2243313433
PF93	2243324322	PG54	2242334312	PH15	2243311324	PH76	2243424424
PF94	2243242313	PG55	2242344242	PH16	2243313222	PH77	2244324333
PF95	2243321313	PG56	2244243242	PH17	2242243312	PH78	2242344322
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PF97	2242431124	PG58	2242321332	PH19	2244233234	PH80	2243321343
PF98	2242433123	PG59	2243434424	PH20	2244331122	PH81	2244323434
PF99	2243312434	PG60	2242342332	PH21	2243313343	PH82	2244342434
PG00	2244313234	PG61	2244342232	PH22	2242323434	PH83	2243223132
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PG02	2244212333	PG63	2243323434	PH24	2243443132	PH85	2243322113
PG03	2243243423	PG64	2244213324	PH25	2243234323	PH86	2243312133
PG04	2242313324	PG65	2243212442	PH26	2243323443	PH87	2243231124
PG05	2243311213	PG66	2243424242	PH27	2242433444	PH88	2242431323
PG06	2244313122	PG67	2242421313	PH28	2243431344	PH89	2243122432
PG07	2244321243	PG68	2244332122	PH29	2243224342	PH90	2244213134
PG08	2242331232	PG69	2243213122	PH30	2244213133	PH91	2242433234
PG09	2243124423	PG70	2244313133	PH31	2244244322	PH92	2244224342
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PG13	2243313342	PG74	2242313124	PH35	2244342424	PH96	2243432443
PG14	2243132242	PG75	2244342322	PH36	2242443424	PH97	2243442433
PG15	2243223344	PG76	2242311242	PH37	2244313344	PH98	2243324313
PG16	2242313243	PG77	2244323234	PH38	2243423122	PH99	2243311312
PG17	2243424342	PG78	2243212312	PH39	2244312434	PJ00	2243133424
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1994 GM Codes

PA00-PP99

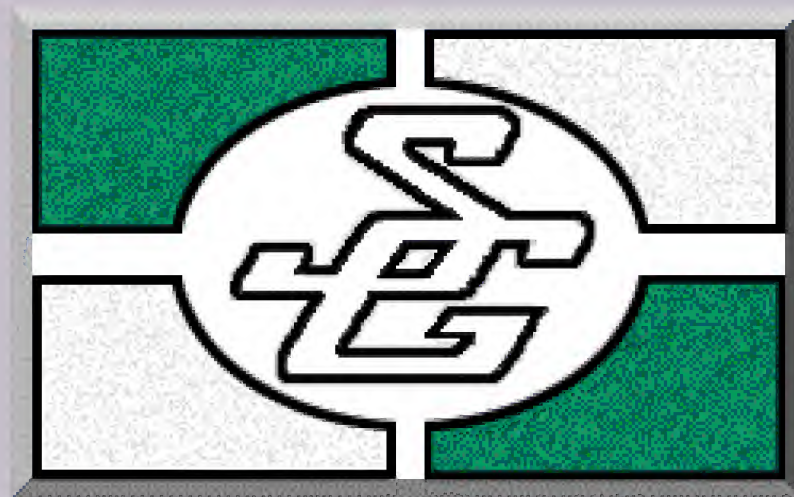
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PJ04	2244242344	PJ65	2244234422	PK26	2242244313	PK87	2242313232
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PJ06	2243342123	PJ67	2243233442	PK28	2244232443	PK89	2242343244
PJ07	2243223444	PJ68	2243131223	PK29	2243131343	PK90	2244231332
PJ08	2243343232	PJ69	2242312133	PK30	2244211333	PK91	2243313422
PJ09	2243432344	PJ70	2243431312	PK31	2243433224	PK92	2242342313
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PJ11	2243343122	PJ72	2242331124	PK33	2311212424	PK94	2243443232
PJ12	2243423424	PJ73	2244332244	PK34	2243112313	PK95	2243221132
PJ13	2243323432	PJ74	2243343223	PK35	2243113344	PK96	2244331334
PJ14	2242342133	PJ75	2244232134	PK36	2243131332	PK97	2243123424
PJ15	2242244334	PJ76	2243442313	PK37	2243121342	PK98	2244244334
PJ16	2242334242	PJ77	2244343423	PK38	2243124422	PK99	2244312313
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PJ18	2242343234	PJ79	2243321344	PK40	2243211243	PL01	2243213233
PJ19	2243442423	PJ80	2243231213	PK41	2242434234	PL02	2311212312
PJ20	2243434322	PJ81	2243121324	PK42	2243232343	PL03	2243343422
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PJ22	2242344313	PJ83	2242344324	PK44	2243134222	PL05	2244332234
PJ23	2311211342	PJ84	2244332443	PK45	2243233132	PL06	2244312423
PJ24	2242321134	PJ85	2244212434	PK46	2242433124	PL07	2243312243
PJ25	2243113422	PJ86	2243312442	PK47	2243112134	PL08	2244231233
PJ26	2244332213	PJ87	2243432122	PK48	2244312242	PL09	2243132344
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PJ28	2243213243	PJ89	2243232434	PK50	2244213433	PL11	2244321343
PJ29	2244324232	PJ90	2244223312	PK51	2243432444	PL12	2242343344
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PJ31	2244211344	PJ92	2243312124	PK53	2243342422	PL14	2243223313
PJ32	2243231232	PJ93	2243113423	PK54	2244242113	PL15	2243442312
PJ33	2242313113	PJ94	2243421342	PK55	2242431332	PL16	2243442123
PJ34	2242321343	PJ95	2242312334	PK56	2243221343	PL17	2242331313
PJ35	2242324433	PJ96	2242442132	PK57	2243342132	PL18	2243442424
PJ36	2243244243	PJ97	2243243123	PK58	2244322132	PL19	2243221342
PJ37	2244242334	PJ98	2244243133	PK59	2243121124	PL20	2243342212
PJ38	2243213112	PJ99	2243434234	PK60	2242331134	PL21	2244312443
PJ39	2243234312	PK00	2243121244	PK61	2242243434	PL22	2243434324
PJ40	2243323132	PK01	2244324244	PK62	2243311243	PL23	2244334233
PJ41	2243321233	PK02	2242424313	PK63	2243112242	PL24	2243122132
PJ42	2244343344	PK03	2243422132	PK64	2311212242	PL25	2244321323
PJ43	2244243342	PK04	2243431242	PK65	2243234212	PL26	2244231134
PJ44	2243312134	PK05	2244233242	PK66	2242313313	PL27	2243342434
PJ45	2243433134	PK06	2243232442	PK67	2244232344	PL28	2243122342
PJ46	2243134342	PK07	2242432132	PK68	2243244322	PL29	2242434424
PJ47	2244221312	PK08	2243422334	PK69	2244343133	PL30	2243343342
PJ48	2243231323	PK09	2243213244	PK70	2243211244	PL31	2243313324
PJ49	2242443243	PK10	2243134344	PK71	2243424434	PL32	2243323313
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PJ51	2244344322	PK12	2243313444	PK73	2244342343	PL34	2243443222
PJ52	2242331322	PK13	2243343434	PK74	2243342322	PL35	2243323123
PJ53	2242243344	PK14	2244322113	PK75	2244212433	PL36	2242313234
PJ54	2244324434	PK15	2243323234	PK76	2243121312	PL37	2311212132
PJ55	2243344242	PK16	2243124322	PK77	2243134223	PL38	2243134322
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PJ57	2244343232	PK18	2244323422	PK79	2244213234	PL40	2244313123
PJ58	2243113432	PK19	2244312323	PK80	2244233244	PL41	2244213213
PJ59	2243243432	PK20	2244213432	PK81	2243242442	PL42	2243323423
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PJ62	2243113224	PK23	2243321213	PK84	2242313133	PL45	2243313344

1994 GM Codes PA00-PP99

PL46	2243423422	PM07	2311224323	PM68	2312213444	PN29	2311224432
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PL48	2244334434	PM09	2312124213	PM70	2311342322	PN31	2312231124
PL49	2243432244	PM10	2312312433	PM71	2312131312	PN32	2312431244
PL50	2243313322	PM11	2311313434	PM72	2312232433	PN33	2311321134
PL51	2244343243	PM12	2312422442	PM73	2311233124	PN34	2313211243
PL52	2244342132	PM13	2311223344	PM74	2311244222	PN35	2312332422
PL53	2243432124	PM14	2312424434	PM75	2313221343	PN36	2313212332
PL54	2243421322	PM15	2311343123	PM76	2311344233	PN37	2311234344
PL55	2243423324	PM16	2312321342	PM77	2311342442	PN38	2312432324
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PL57	2244324332	PM18	2313123442	PM79	2312442423	PN40	2312331212
PL58	2244231323	PM19	2311324423	PM80	2311312124	PN41	2311343244
PL59	2242443344	PM20	2313112434	PM81	2312422334	PN42	2312231232
PL60	2243423213	PM21	2312113322	PM82	2312432343	PN43	2311321344
PL61	2244212332	PM22	2312113312	PM83	2313131222	PN44	2311324343
PL62	2243434223	PM23	2312313344	PM84	2312213312	PN45	2312442133
PL63	2242343434	PM24	2311233422	PM85	2311242343	PN46	2311342423
PL64	2243323444	PM25	2311221343	PM86	2313121324	PN47	2312432122
PL65	2244234334	PM26	2311313234	PM87	2311234323	PN48	2312323122
PL66	2242443113	PM27	2312311333	PM88	2312434434	PN49	2311343434
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PL71	2243342122	PM32	2312134223	PM93	2312212333	PN54	2312213324
PL72	2242431322	PM33	2312134222	PM94	2312122344	PN55	2312323432
PL73	2244242342	PM34	2311324333	PM95	2312342243	PN56	2312131123
PL74	2244342344	PM35	2311234423	PM96	2312243422	PN57	2312321124
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PL76	2243213312	PM37	2311233432	PM98	2312233132	PN59	2312423312
PL77	2243121123	PM38	2311322124	PM99	2313123244	PN60	2312343243
PL78	2243324423	PM39	2312313113	PN00	2311242442	PN61	2312421233
PL79	2243223112	PM40	2312121342	PN01	2312121344	PN62	2313134424
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PL81	2243432434	PM42	2313113124	PN03	2313132442	PN64	2313134232
PL82	2242311323	PM43	2311224322	PN04	2312342333	PN65	2312113443
PL83	2244324424	PM44	2312442242	PN05	2312421124	PN66	2312342332
PL84	2243311313	PM45	2312332343	PN06	2312134422	PN67	2313121312
PL85	2243432213	PM46	2311313244	PN07	2312242312	PN68	2312124232
PL86	2244324322	PM47	2311312324	PN08	2312232432	PN69	2312442343
PL87	2243113242	PM48	2312211334	PN09	2311243232	PN70	2311331242
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PL95	2242443434	PM56	2312324243	PN17	2312442233	PN78	2312121133
PL96	2243122134	PM57	2312434242	PN18	2311231344	PN79	2312332312
PL97	2243224344	PM58	2312421133	PN19	2312311323	PN80	2313134244
PL98	2242423134	PM59	2311344213	PN20	2312212443	PN81	2312342134
PL99	2243113223	PM60	2312213213	PN21	2313221243	PN82	2312434313
PM00	2311322123	PM61	2312123113	PN22	2312113133	PN83	2313113222
PM01	2311321312	PM62	2311213342	PN23	2313124434	PN84	2311324224
PM02	2312433112	PM63	2313212444	PN24	2313121333	PN85	2313122134
PM03	2311223444	PM64	2312323344	PN25	2312434222	PN86	2311324233
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PM05	2312113434	PM66	2312433434	PN27	2312312234	PN88	2312424213
PM06	2312431323	PM67	2311234222	PN28	2313133122	PN89	2313124333

1994 GM Codes PA00-PP99

PN90	2311324243	PP18	2312313134	PP46	2312343442	PP74	2313212134
PN91	2312332433	PP19	2311334344	PP47	2312434213	PP75	2311221133
PN92	2312243122	PP20	2312112444	PP48	2311312323	PP76	2312231332
PN93	2312134213	PP21	2311233132	PP49	2312313313	PP77	2313113233
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PN96	2311344212	PP24	2311324324	PP52	2312113213	PP80	2312343342
PN97	2311223113	PP25	2312431133	PP53	2313221134	PP81	2312442443
PN98	2312331323	PP26	2312112132	PP54	2312134212	PP82	2312121243
PN99	2311242443	PP27	2312334233	PP55	2311344243	PP83	2311213324
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PP04	2311213323	PP32	2312332134	PP60	2311343224	PP88	2311343324
PP05	2312112133	PP33	2311313323	PP61	2312132434	PP89	2313123122
PP06	2311322132	PP34	2312231212	PP62	2311224422	PP90	2312122313
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PP15	2312313223	PP43	2312434422	PP71	2313132313	PP99	2311322433
PP16	2313112312	PP44	2312123443	PP72	2313112422		
PP17	2312232112	PP45	2312434244	PP73	2312132442		



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FORD 10-CUT FINALE CORRECTIONS

Reprinted from August 1994

Test Article #59

by Tom Mazzone

In our August 1994 issue Auto Test article, "Ford 10-Cut Finale," a set of charts on the tumbler position and progression sequence for the Ford 10-cut were inadvertently altered and ran incorrectly. Following is a reprint of the author's original article and charts. I apologize for the inconvenience.

Not content in keeping the newly developed 10-cut system the same, Ford initiated various changes starting with the 1991 Ford Escort and Mercury Tracer. In these models, the first three cut spaces are not used in any of the vehicles' locks. Positions four through nine are incorporated into the door locks as well as the deck lid cylinder. The ignition utilizes positions five through ten. This means that once the door or deck lid biting is determined position ten can be progressed to get a working key for the ignition.

For vehicles incorporating this new system, it is unnecessary to cut positions one through three onto a key. For aesthetic purposes, however, any depth can be made in these positions provided the MACS of two is not violated. Overall, this change is very locksmith friendly for generating a first key.

Apparently not satisfied with the changes of 1991, along comes 1993 and yet still another change to the Escort/Tracer 10-cut system. Again the first three spaces are not used for the door lock portion. Yet, unlike its most recent predecessor, the door lock now incorporates tumblers in only five instead of six positions. (See Table 1 at the end of this article for a synopsis of the Ford 10-cut systems.)

In this new series lock, the depths for positions four through eight are known through the door or deck lid lock, leaving us to find the depths for

positions nine and ten for the ignition. While creating a larger number of possibilities than its immediate predecessor, the number of possible tries needed to progression the last two cuts of this key is still greatly reduced from the original 10-cut system. In fact, once the depths for positions four through eight are determined, use Table 2 at the end of this article to create a first key.

In 1993, the Ford and Nissan created the Ford Villager and the Nissan Quest in a joint venture. These vehicles use the 10-cut system introduced in the 1993 Escort/Tracer. The door locks utilize tumblers in positions four through eight. The ignition has tumblers for positions five through ten. Unlike the Escort/Tracer, however, the Villager/Quest also has a glove box lock that includes

tumblers for positions eight and ten.

Making a key for these two vehicles is simple. The depths for positions four through eight come from the door. Position ten can be obtained by progression through the glove box. Position nine is obtained by progressing the ignition.

If desired, try out keys are also an effective method to determine a first key. They are used in the same manner as in the past but you will find that fewer try out keys are needed. Once the correct tryout key has been determined, it is simply a matter of decoding the two remaining positions from half cuts to true depths.

While all this may sound confusing, the new generation 10-cut systems are

FORD 10-CUT TUMBLER POSITION GUIDE

STANDARD 84-1/2 FORD 10-CUT SYSTEM

Position	1	2	3	4	5	6	7	8	9	10
Door	X	X	X	X	X	X				
Ignition					X	X	X	X	X	X
Trunk	Std. 5 Pin Ford System Using Secondary Blank.									

1991 FORD ESCORT/MERCURY TRACER

Position	1	2	3	4	5	6	7	8	9	10
Door				X	X	X	X	X	X	
Ignition					X	X	X	X	X	X
Deck Lid				X	X	X	X	X	X	

1993 FORD ESCORT/MERCURY TRACER

Position	1	2	3	4	5	6	7	8	9	10
Door				X	X	X	X	X		
Ignition					X	X	X	X	X	X
Deck Lid				X	X	X	X	X		

1993 MERCURY VILLAGER/NISSAN ESCORT

Position	1	2	3	4	5	6	7	8	9	10
Door				X	X	X	X	X		
Ignition					X	X	X	X	X	X
Glove Box								X		X

Table 1

Continued from page 98

**1993 FORD
ESCORT/MERCURY TRACER
PROGRESSION CHART**

If space 8 is a 1 depth cut spaces 9 and 10 to the following:

Key #1	Key #2	Key #3
1-1	2-1	3-1
1-2	2-2	
1-3	3-2	
2-3	3-3	
2-4		
3-4		
3-5		

If space 8 is a 2 depth cut spaces 9 and 10 to the following:

Key #1	Key #2	Key #3
1-1	2-1	3-1
1-2	2-2	3-3
1-3	3-2	
2-3	4-2	
2-4	4-3	
3-4	4-4	
3-5		
4-5		

If space 8 is a 3 depth cut spaces 9 and 10 to the following:

Key #1	Key #2	Key #3
1-1	2-1	3-1
1-2	2-2	4-2
1-3	3-2	5-3
2-3	3-3	
2-4	4-3	
3-4	4-4	
3-5	5-4	
4-5		
5-5		

If space 8 is a 4 depth cut spaces 9 and 10 to the following:

Key #1	Key #2	Key #3
2-1	3-1	4-2
2-2	3-2	4-4
2-3	3-3	
2-4	4-3	
3-4	5-3	
3-5	5-4	
4-5		
5-5		

If space 8 is a 5 depth cut spaces 9 and 10 to the following:

Key #1	Key #2	Key #3
3-1	4-2	5-3
3-2	4-3	
3-3	4-4	
3-4	5-4	
3-5		
4-5		
5-5		

Table 1

actually simpler to work on in comparison to the original. The vehicles currently affected by the new 10-cut systems are the Ford Escort, Mercury Tracer and Villager, and the Nissan Quest.

While not common, there may be some decoding problems that should be pointed out. There have been reports of Ford substituting a 5 depth wafer in place of a 4 depth wafer. While this substitution still allows the door lock to operate, the ignition lock is of tighter tolerance and may not work.

If a true 4 depth is mistaken for a 5 depth, the ignition will not turn. In this event, suspect that all 5 depths may actually be 4 depths. Cut all 5 depths to a 4 depth and file to a 4-1/2 depth. Run your progression sequences again and look for impression marks once the lock has yielded.

If you see an impression mark on a 4-1/2 depth, file that space to a 5 depth. If no mark is visible, recut the key using 4 depths in those positions. Using the MACS factor also helps cut down some of the work.

As you can see, the change in the system while intimidating at first, is actually easier to work with than the original setup. While Ford's reason for revision is unclear to this author, once again we see that changes in the lock systems may be dealt with by obtaining as much information as possible. In this case, one can agree that once there is a good working knowledge of the original Ford 10-cut system, these new procedures can be quickly adapted.



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BEGINNER'S CORNER

Continued from page 24

the pick hits the bottom pins, they in turn hit the top pins, causing the top pins to bounce above the shear line.

As you apply the tension, some, or if you are lucky, all the top pins will hold above the shear line and the lock will open. Most of the time you will have to pull the trigger several times, adjusting the tension until the lock opens. The pick gun is also adjustable with a light to heavy hit on the pins. At times, the pick gun will not pick all the pins and you have to finish with a hand pick.

All picking tools and plug spinners are available at your local distributor.



LIGHTER SIDE

Continued from page 48

were found, Don was on the verge of homicide.

"I keep telling you, we lost those keys a couple of weeks ago. Why won't you listen?" Bob finally said to his lady. "Forget about trying to find

them. Just get some new ones made."

"To make matters worse," Don later said, "the guy kept chattering at me the whole time I was working. He was determined to give me all the details of some movie about a serial killer. I started to warn him that he was giving me ideas."

"You still haven't told me what an elephant trunk key is," Dave reminded him.

"Oh, that," Don said, laughing. "Years ago, I happened upon one hanging on the wall of a friend's accounting office. The shaft of it was a piece of pipe about five feet long. To one end had been welded a turn-grip, and to the other end, a large key. I must have stared at it for ten minutes, before I finally got up nerve enough to ask about it.

"What is that thing?" I said.

"It's a key," he replied.

"Well, I can see that," I said, "but what kind of key?"

"An elephant trunk key," he replied. The object, he eventually went on to say, was to insert it at the rear of the elephant, and when you turned the key, his trunk would fall off. Once my

friend had enlightened me with a perfectly straight face, and had watched my dumbfounded expression turn to chagrin, he nearly laughed himself silly. He finally admitted he'd been waiting weeks for me to come in and 'bite.' Ever since, I've thought about hanging one in the store, for those super-smart fellows who know everything."

Don's eyes twinkled. "But with my luck, some animal rights activist would come in here and think I was serious."



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SHOP TALK

Helpful questions and answers

Shop Talk answers readers questions on any locksmith related topic. Only letters judged to be of general interest will be published. We regret that we cannot answer individual letters. Because of the volume of mail, only those questions answered in the magazine will receive answers. Send your questions to Shop Talk, *The National Locksmith*, 1533 Burgundy Parkway, Streamwood, IL 60107.

Q: *I would like to specialize in interchangeable (IC) core cylinders and need to know where I can get information on them? Don Givens, Texas*

A: There are many types of IC core systems, Don. Best is probably the most recognized and has been the

standard for many IC manufacturers that follow the A2, A3 and A4 systems.

With these systems master pins are used to create a secondary shearline that affects the top or retaining lug portion of the cylinder. Best, Falcon, Arrow and Corbin all use systems like this, although they may have their own method and specifications for creating the secondary shearline.

Other manufacturers, such as Schlage, Yale and older style Medeco, use a specially designed or cut key to actuate the retaining lug. These systems are, generally, a little easier to work with for beginning IC locksmiths.

For learning these different systems I recommend obtaining Don O'Shall's book, "*The National Locksmith Guide To: Interchangeable Core Cylinders*." Don thoroughly covers many of the systems you will run into in the field. Don's book can be purchased for \$34.95 from *The National Locksmith*, 708-837-2044.

Q: *I don't do alot of auto work, but never turn it down when I have the opportunity to work on one. Recently, I had an older Ford Mustang where the ignition would not turn. The key went into the lock just fine, and after raking with a pick, all the tumblers seemed to be moving freely. Still, even after making a new key cut by code, the ignition would not turn. Do you have*



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any suggestions? Jeff Ribble, Oklahoma.

A: Seems to me, Jeff, that the problem might be a broken buzzer activator. This is one of the more common Ford 5-cut ignition lock malfunctions.

When you look into the keyway, the brass buzzer switch contact can be seen at the top, just projecting down into the keyway. When a key is inserted, the switch is grounded and activates the buzzer.

Unfortunately, for the owner, the design of this switch allows for the brass contact portion of the switch to break free (usually from excessive wear) and fall into the keyway. When a key is inserted into the lock, the broken contact is pushed to the rear of the cylinder, not allowing the key to fully seat.

There are three ways to solve this problem: (1) Use a hook pick to remove the broken switch contact. (2) File the tip of the key off just enough to allow it to seat properly. (3) Drill or use a force tool to remove the lock.

Once the lock is turned, remove and replace the buzzer switch and, if necessary, the lock.

Q: *I don't do many safes, but I got one the other day at a local hardware store. Apparently someone had tried to burglarize it because the dial is missing and the handle spins freely. I believe it's a fire safe because the outside has an outside metal skin with several large dents made by a hammer or crowbar.*

The safe is roughly 20" wide and 25" high. The door is 16-1/2" wide and 21-1/2" high. A hole for the dial is about in the center of the door and a handle is horizontally 4-1/4" to the left of the dial.

There are four large metal casters on the bottom.

The problem I have is that there is nothing on the safe to identify it. Can you tell me how to get it open? Bud Walters, Florida.

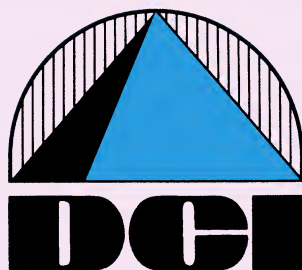
A: Not yet, Bud. Not being able to see the safe, I'm going to have a harder time than you in supplying a method of attack. Normally, I'd

suggest you take Dale Libby's advice and "attack the lock." Unfortunately, not even that can be identified. So, we're going to have to identify the safe first.

Besides the dimensions you gave me, Bud, there are many ways to determine the possible manufacturer of a safe. These include the types of corners and edges on the safe body, the shape of the door and its corners, the hinges, the casters and the type of handle or lever.

Send me some clear Polaroid photos of the safe as well as the different parts mentioned above, and I'll try and help you identify it. In the meantime, consider purchasing Dave McOmie's Safe Opening manuals. They are filled with hundreds of common, and some not so common, safes, their locks, drill points and service information.

Send photos to *The National Locksmith*, 1533 Burgundy Pkwy, Streamwood, IL 60107, c/o Tom Seroogy.



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TEST DRIVE



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PRO-LOK HARDBODIES

PRODUCT: Hardbody car opening lights by Pro-Lok. The AL10500 (with broad spectrum bulb) lists for \$29.95, the AL15500 (Krypton bulb) lists for \$45.95. Contact Pro-Lok at 1060 N. Batavia, Ste. G, Orange, CA 92667. Phone 714-633-0681 or fax 714-633-0470.

PRODUCT DESCRIPTION: Two Hardbody car opening lights are available. The AL10500 is the smaller of the two, uses two AA size batteries and a broad spectrum light and provides a little less lumination than its bigger brother, the AL15500.

The AL15500 uses three AA size batteries and a Krypton bulb. The batteries for both lights are not included.

FRIENDLINESS: Except for the batteries, these lights come ready to use. Remove them from the protective tubes, insert the batteries, attach the lights and - *voilà* - light.

FEATURES: The first feature noticed isn't even part of the lights - its the storage tube they come in. Unlike many others, these lights are packed in a heavy PVC tube to keeping them free from harm. A definite advantage for storing in tool boxes and work vans.

The features of the lights address an age old problem for car opening lights - durability. The Hardbody is designed for a long and rough life from head to toe and includes a lifetime warranty.

Starting with the end of the wand, a rubber tube or boot has been placed around the bulb to protect it against the bumps that occur during insertion into and removal from the door body. The bulb itself unscrews for easy replacement.

Moving down, the wand is made of extremely flexible coaxial cable. This writer tied the wand into several knots

without any adverse affects. The other end of the wand is terminated with an integrated coaxial connector. This connector makes for a positive connection, often a trouble spot in opening lights, to the body holding the batteries.

Finally, the body is made of a machined aluminum, a far step beyond the typical plastic bodies, and completed with a durable and attractive black finish. Caps on either end of the unit can be unscrewed for battery insertion.

Noticeably, there is no switch to wear out or go bad on this light. The light is turned on by attaching the light wand to the body.

Attached to the body is a suction cup window attachment. This allows attaching and positioning the light to the car's window, leaving both hands free to use the opening tool.



The Hardbody AL10500 (bottom) and AL15500 by Pro-Lok.

COMMENTS AND SUGGESTIONS: In short, the Hardbody is to car opening lights what Mag is to flashlights - Rugged and durable. The two units tested were dropped, stepped on, and kicked without functional damage (only the finish was scarred).

After our test drive, we suggest only one minor change. One of the main features of the Hardbody is that it does not use a switch. Switches on car opening lights are typically the weakest part of the system, often failing long before the light unit itself has gone bad. The Hardbody, instead of using a switch, simply has the user plug in the light.

While not having a switch has its advantages, it also poses some inconveniences.

If Pro-Lok can find a switch as durable as the Hardbody light, the change would be welcome. Until then, however, the inconvenience or slightly shorter battery life are small sacrifices for the use of this light.

CONCLUSION: The Hardbody lights by Pro-Lok are reasonably priced and come with a lifetime warranty. Not many products carry both claims, the Hardbody is a good investment for the locksmith's tool box.



DESCRIPTION:
Hardbody car opening lights.

COMMENTS:
Hardbody is the "Mag light" of car opening lights.

TEST DRIVE RESULTS:
Considering both the price and the lifetime warranty, every automotive toolbox should have a Hardbody light.